Department of the Army
Program Manager for
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Aberdeen Proving Ground, Maryland

Chemical Stockpile Disposal Project

Programmatic Process Functional Analysis Workbook (FAWB)

Book 21

Rocket Handling System

RHS

Revision 1
January 7, 2004

NOTE: The RHS programmatic process FAWB applies to ANCDF, PBCDF, TOCDF and UMCDF.

ALL FAWB SYSTEMS

Book (Chapter[1])	System Identifier	FAWB Title
UTILITY SYSTEMS (Site-specific)		
1 (5.15)	NGLPG	Fuel Gas System (Natural Gas and Liquefied Petroleum Gas)
2 (5.14)	HYPU	Hydraulic Power Unit and Distribution System
3 (5.19)	BCS	Bulk Chemical Storage System
4 (5.16)	CAS	Compressed Air Systems (Plant, Instrument, and Life Support)
5 (5.22)	SGS	Steam Generation System
6 (5.26)	DMS	Door Monitoring System
7 (5.28)	PCS	Primary Cooling Systems
8 (5.12)	EPS	Electrical Distribution and Emergency Power System
9 (5.13)	—	(HVAC FAWB moved to Book 20 (Process Systems))
10 (5.17)	WATER	Water Systems (Process Water, Potable Water, and Water Treatment Systems)
11 (5.21)	CDSS	Central Decon Supply System
12 (5.18)	TSHS	Toxic Storage and Handling Systems (Agent Collection, Spent Decon, and Sumps)
13 (5.20)	ACSWS	Acid and Caustic Storage and Wash System (DELETED[2])
14 (5.27)	FDSS	Fire Detection and Suppression System
15 -19	—	(not assigned; reserved for future use)
PROCESS SYSTEMS (Programmatic)		
20	HVAC	Heating, Ventilation, and Air Conditioning System
21	RHS	Rocket Handling System
22	PHS	Projectile Handling System
23	MHS	Mine Handling System
24	BCHS	Bulk Container Handling System
25	DFS	Deactivation Furnace System
26	LIC	Liquid Incineration System
27	MPF	Metal Parts Furnace System
28[3]	PAS/PFS	DFS, LIC and MPF Pollution Abatement System and PAS Filter System
29	BRA	Brine Reduction Area and BRA PAS
30	CHB	Container Handling Building
31	ACAMS	Automatic Continuous Air-Monitoring System
32	TCE	Treaty Compliance Equipment
33[4]	DUN	Dunnage Incineration System and DUN PAS
34[3]	PFS	LIC, DFS, and MPF PAS Filter Systems (DRAFT only)

[1] TOCDF has original "chapter" numbers for utility system FAWBs.

[2] The ACSWS FAWB was deleted.

[3] The PAS and PFS FAWBs were combined into a single PAS/PFS FAWB (Book 28).

[4] A DUN FAWB is not being developed per direction of PMCSD on 9-10-98.

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REVISION LOG

REV.#	PAGE(S)	REFERENCE AND DESCRIPTION OF CHANGE
0	NA	Initial Issue
Final Draft Rev.1	*Sect.1, 2-3, 3-1,2, 4-1*	*Editorial*
	2-2, 3-1, B-3,4, C-18, D-17,18	*ECP TEMP2450RSM - Code Modification for Solidified Rocket Processing*
	3-4, B-4	*ECP ANWP1574ACS – RSM-101 and RSM-102 AQS Piping*
	3-5	*Deleted Figures 3-1 and 3-2, AQS diagrams.*
	3-5,7,9,10 Appendix C	*ECP TEMP2867RSM – Alarm to Alert Conversion for the RSM System*
	3-5,7,9,10 Appendix C	*ECP ANWP1543RHS – Alarm Alert Modification – RHS*
	3-5,7,9,10 Appendix C	*PBCDF proposed ECP PBSF1808STE – Alarm/Alert Modifications*
	3-8	*ECP ANWP1565MMS, UMSF1187ECR – MMS-CNVM-103 Swing Roller Removal*
	3-10, B-4, C-19,21, D-25,55,62	*Updated to reflect PLC code for processing rockets with end caps.*
	Appendix A	*Updated with latest comprehensive acronym list.*
	B-1,2	*Updated to include UMCDF plan for processing gelled rockets and rockets with tetrytol bursters.*
	B-3, C-4,12, 13,14,15,16, 18,20	*ECPs ANAP1120ICS, UMAP928ICS – RFIs 66th Set – Furnace Emergency Stop, PBAP1014ICS – RFIs 61st Set – Furnace Emergency Stop, TEMP2529CON R1 - Add Two Additional Consoles for Demil Equipment in the CON.*
	B-5	*TOCDF M56 Rocket GB Agent Campaign Report.*
	B-5	*TOCDF End of Campaign Report M55 GB Rockets.*
	B-5, E-8	*ECP TEMP2556RSM - ECR Control Screen.*
	Appendix C	*Updated to reflect current source documentation, including creating new site-specific AQS matrices.*
	C-17	*TEMP2463ECR – ECR A Agent Quantification System Removal*
	Appendix D	*Updated TOCDF PLC logic. Added PLC control logic for ANCDF, PBCDF, and UMCDF. Replaced programmatic rocket drain sequencer table with one for TOCDF and one that represents the follow-on site sequence.*
	Appendix E	*Update TOCDF screens. Added ANCDF, PBCDF, and UMCDF screens. Added ANCDF and TOCDF ECR screens.*
	Appendix F	*Updated to reflect current source documentation.*
	Appendix G	*Updated to include DICIs/DICOs for all sites.*

SECTION 1
INTRODUCTION

1.1 CSD PROJECT BASELINE TECHNOLOGY OVERVIEW

The Office of the Project Manager for Chemical Stockpile Disposal (PMCSD) is responsible for the disposal of the United States' existing unitary chemical weapon stockpile. PMCSD manages execution of the design, construction, equipment acquisition/installation, systemization, plant operations, and closure of all CSD project sites.

The CSD project baseline technology consists of the following:

- mechanical disassembly or puncturing the munitions to remove chemical agent and any explosives or propellant,
- incineration of the chemical agent and any explosives and propellant, and
- thermal detoxification of metal parts and any contaminated dunnage.

This technology was demonstrated during a series of operational verification testing (OVT) campaigns at the Johnston Atoll Chemical Agent Disposal System (JACADS). JACADS represented the first generation of a full-scale facility implementation of the project baseline technology. JACADS completed disposal of the chemical agent and munitions stockpiled at Johnston Atoll in November, 2000.

The second generation plants implementing the baseline technology include the following:

- Tooele Chemical Agent Disposal Facility (TOCDF), located at the Deseret Chemical Depot in Tooele, Utah;
- Anniston Chemical Agent Disposal Facility (ANCDF), located at the Anniston Army Depot near Anniston, Alabama;
- Umatilla Chemical Agent Disposal Facility (UMCDF), located at the Umatilla Chemical Depot near Hermiston, Oregon; and,
- Pine Bluff Chemical Agent Disposal Facility (PBCDF), located at the Pine Bluff Arsenal near Pine Bluff, Arkansas.

Unless otherwise noted, the programmatic functional analysis workbooks (FAWBs) for process systems apply to each of these CSD sites.

1.2 BACKGROUND

FAWBs for 25 plant systems were issued for JACADS in January 1985 by The Ralph M. Parsons Company (now the Parsons Infrastructure & Technology Group, Inc.). Parsons is the Design and Systems Integration Contractor (DSIC) for the CSD project. The FAWBs provided the basis for the facility control system's programmable logic

controller (PLC) and computer systems programming. The JACADS FAWBs were later revised by United Engineers & Constructors and, by the July 1989 issue, two additional systems had been added.

FAWBs for TOCDF were issued in April 1993 by Parsons. There were 28 plant systems defined for TOCDF; however, only 27 FAWBs were issued (The Residue Handling Area FAWB was not issued). Most of the TOCDF plant systems were the same as those for JACADS; however, there were some differences due to different plant configurations, system consolidations, and the inclusion of additional systems. The TOCDF systems contractor (SC) received the FAWBs and assumed responsibility for maintaining the set current with the TOCDF plant configuration and the evolution of its operational strategy. Utility system FAWBs also were developed for ANCDF, PBCDF and UMCDF. Their purpose is to assist the sites during utility systems equipment procurement, and to describe their use in facility operation. Utility system FAWBs are more site-specific, consist primarily of SC-procured equipment, and will be maintained by the individual demilitarization sites.

In September 1997, PMCSD began the development of programmatic process FAWBs for process systems common to all sites, eliminating the need to maintain separate process FAWBs at each site. Having a single set of process FAWBs provides a means to ensure operational consistency between the sites and to accurately record differences between the demil facilities. The programmatic process FAWBs serve as an invaluable training tool for the Systems Contractor for Training (SCT) to ensure consistent training on process systems for all sites, and to quickly identify site-specific training requirements.

1.3 PROGRAMMATIC PROCESS FAWB SYSTEMS

Sixteen process systems having minimal differences between sites were designated as programmatic systems. These programmatic process FAWBs are maintained as a single reference rather than at each site. Minor site configuration differences between the sites are highlighted in the FAWB discussions and tables. Fourteen of these 16 systems were included in the 28 original plant system FAWBs developed by the DSIC. For conciseness, the dunnage incinerator (DUN) and DUN pollution abatement system (PAS) FAWBs were to be combined into a single FAWB, for a total of 15 programmatic process FAWBs. However, development of a programmatic FAWB for the DUN and DUN PAS was suspended indefinitely at the direction of the PMCSD Operations Team (see FAWB Note B-1). In addition, FAWBs for the wet PAS and the PAS filter system (PFS) were combined into a single FAWB (see FAWB Note B-2). Therefore, a total of 13 programmatic FAWBs were developed for the process systems. The heating, ventilating, and air-conditioning (HVAC) FAWB originally was included as one of the utility system FAWBs produced for ANCDF in 1996 (HVAC FAWB was Book 9 for ANCDF Utility FAWBs). It has been recategorized as a process system and is included in the set of programmatic process FAWBs.

The programmatic process FAWBs are numbered in accordance with the convention established during production of the ANCDF and UMCDF utility system FAWBs. This convention reserves book numbers 1 through 19 for utility systems, and book numbers 20 through 34 for the process FAWBs. Programmatic process FAWB book numbers and

titles are listed in Table 1.1. The original TOCDF FAWB chapter numbers are shown for reference.

Twelve of the 28 original plant system FAWBs are designated as site-specific utility systems. For these systems, the SC is delivered an initial utility FAWB indicating the system design configuration and operational strategy. The SC maintains the utility FAWBs to reflect the site-specific configuration. The utility FAWBs are listed in Table 1.2; original TOCDF FAWB chapter numbers are shown for reference.

The two remaining systems of the 28 originally planned plant system FAWBs are the acid and caustic storage and wash system (ACSWS) (5.20) and the residue handling area (5.24). The ACSWS FAWB at TOCDF no longer is maintained and has not been developed for follow-on sites (see FAWB Note B-3). A FAWB for the residue handling area was not produced due to its lack of automatic control features.

Table 1.1 Programmatic Process FAWBs

FAWB Book #	FAWB Title (TOCDF FAWB Chapter #)
20	Munitions Demilitarization Building HVAC (5.13)
21	Rocket Handling System (5.1)
22	Projectile Handling System (5.2)
23	Mine Handling System (5.3)
24	Bulk Container Handling System (5.4)
25	Deactivation Furnace System (DFS) (5.5)
26	Liquid Incinerator (LIC) System (5.6)
27	Metal Parts Furnace (MPF) System (5.7)
28[1]	DFS, LIC, and MPF Pollution Abatement System and PAS Filter System (5.9)
29	Brine Reduction Area (BRA) and BRA PAS (5.23)
30	Container Handling Building (5.11)
31	Automatic Continuous Air Monitoring System (5.25)
32	Treaty Compliance Equipment (Not included in original FAWB)
33[2]	DUN System and DUN PAS (5.8 & 5.10)

[1] Per discussions held during the comment resolution matrix meeting for the PAS FAWB on 11-10-98, the draft programmatic process FAWBs for the PAS and PFS were combined into a single PAS/PFS FAWB, Book 28 (See FAWB Note B-2).

[2] As directed at the FAWB teleconference on 9-10-98, a programmatic process FAWB for the DUN/DUN PAS is not being developed (See FAWB Note B-1).

Table 1.2 Site-Specific Utility FAWBs

FAWB Book #	FAWB Title (TOCDF FAWB Chapter #)
1	Fuel Gas System (5.15)
2	Hydraulic Power Unit and Distribution System (5.14)
3	Bulk Chemical Storage System (5.19)
4	Compressed Air Systems (5.16)
5	Steam Generation System (5.22)
6	Door Monitoring System (5.26)
7	Primary Cooling System (5.28)
8	Electrical Distribution & Emergency Power System (5.12)
9	Not used; formerly HVAC
10	Water Systems (5.17)
11	Central Decon Supply System (5.21)
12	Toxic Storage and Handling Systems (5.18)
13	Not used; formerly acid and caustic storage and wash system
14	Fire Detection and Protection System (5.27)
15 - 19	Not assigned; reserved for future use

1.4 PROGRAMMATIC PROCESS FAWB PURPOSE

The programmatic process FAWBs serve as a repository for all control information for the automated aspects of the baseline technology demilitarization process systems. They serve as one of the source documents for PLC control system and computer system programming, operator training, and facility operation. These FAWBs also serve as programmatic reference documents that define how the process systems operate and capture the differences between facility operational configurations. Each programmatic process FAWB contains a subsection that defines the system boundaries and identifies the interfaces with other plant process and utility systems.

Programmatic process FAWBs are living documents, subject to configuration control under the CSD project Participant Quality Assurance Plan. They are meant to be continuously updated with user input whenever system modifications are made, or as needed to enhance the information presented. Programmatic process FAWB revisions are implemented as outlined in Section 1.6. The process by which the SCT maintains the programmatic process FAWBs and the roles and responsibilities of each organization affiliated with the CSD project are described in detail in the Programmatic Process FAWB Maintenance Plan.

Programmatic Process FAWB Limitations

Even though the FAWBs contain detailed descriptions of the configuration and control for each process system, they are not all-inclusive. Every effort is made to include the

level of detail necessary to fully describe the specific operating configuration for each process system. Each process FAWB includes supporting references to direct the user to relevant programmatic and site-specific documentation (e.g., standing operating procedures, drawings).

Because of the revision cycle time, there will be a slight lag time between recent changes and their reflection in the FAWB. Maintenance of the FAWBs will be done semiannually, or more frequently if needed, to reflect significant modifications.

The FAWB maintenance program relies heavily on input from each baseline technology demilitarization site. Timely and accurate input ensures that the FAWBs reflect the current configuration at each of the sites. All information received will be thoroughly reviewed to ensure consistent and accurate documentation.

As a programmatic document, the FAWBs describe the configuration and operation of four separate facilities. Care must be taken by the user to ensure that the information extracted from this document reflects the configuration for the facility of interest. Site-specific differences are highlighted in both the text and the appendices to avoid confusion.

1.5 PROGRAMMATIC PROCESS FAWB ORGANIZATION

The process FAWBs document the chemical demilitarization facility operations at ANCDF, PBCDF, TOCDF, and UMCDF. The format and structure of the programmatic process FAWBs differ from the original format prepared by the DSIC, and from the format previously maintained at TOCDF. The information from earlier versions has been retained and updated to reflect lessons learned from the design, construction, systemization, and operation of the demilitarization facilities, including JACADS and the Chemical Agent Munition Disposal System (CAMDS). The overall layout of the programmatic process FAWBs is shown in Table 1-3.

1.6 PROGRAMMATIC PROCESS FAWB REVISIONS

The programmatic process FAWBs are maintained by the SCT to reflect the operational and control system configuration at each CSD site that implements the baseline destruction technology. Each programmatic process FAWB will be reviewed and revised, as required, on a semiannual basis. Individual process FAWBs can be revised more frequently, if needed, to reflect significant configuration changes. Programmatic process FAWB modifications can be generated by the following:

- Engineering change proposals at any of the CSD sites
- CSD project programmatic lessons learned
- Operational modifications that do not involve configuration changes
- Programmatic changes
- Need for greater detail or clarification

The programmatic process FAWB maintenance plan identifies the organizations that participate in the FAWB maintenance program and the responsibilities of each to supply information that could result in revisions to the FAWB. All organizations are represented

on the FAWB Evolvement/Evaluation Team (FEET), and are involved with review of each FAWB revision to ensure that the site configuration and operating strategy is current.

Table 1.3 Organization of the Programmatic Process FAWBs

Section	Title	Contents
1	Introduction	General FAWB background, organization, and revision method
2	System Overview	Purpose of the system; operational and process design basis summary; system boundaries and interfaces
3	Process Description	Description of subsystems; control sequences
4	Component Summary	Tables listing parameters for primary components; power source listings
App. A	Acronyms and Abbreviations	
App. B	FAWB Notes	Notes that provide additional detail or background information
App. C	Alarm and Interlock Matrices	Programmatic matrices or matrices for each site
App. D	PLC Automatic Control Sequences	Automatic logic contained in the PLC code; burner management system automatic controls; sequencer logic for demil systems
App. E	Operator Screens	Advisor PC screens for each site
App. F	Instrument Ranges	Tables showing instrument ranges and setpoints
App. G	Intercontroller Communications	Tables listing the digital intercontroller inputs/outputs (DICIs/DICOs)
App. H	References	Listing of reference documents, including drawings, used to prepare and maintain the FAWB

SECTION 2
SYSTEM OVERVIEW

2.1 PURPOSE AND FUNCTION

The rocket handling system (RHS) begins the demilitarization process for M55 rockets. The RHS transports fully-assembled rockets in their firing tubes from the unpack area (UPA), through the explosive containment vestibule (ECV), and into the explosive containment rooms (ECRs) where the rocket processing equipment is located. In the ECRs, rockets are demilitarized by removing the agent stored in the rocket body cavity and shearing the rocket into pieces. The sheared rocket pieces are fed in batches (i.e., 2 to 5 pieces at a time) to the deactivation furnace system (DFS) for destruction. Drained agent is collected in the agent quantification system in the ECR before being transferred to the agent collection tank in the toxic cubicle (TOX). Agent is fed from the agent collection tank to the liquid incinerator (LIC) system for destruction.

2.2 OPERATIONAL SUMMARY

The RHS is capable of processing the M55 rockets found in the United States' unitary chemical weapons stockpile. There are two identical processing lines for rocket handling and processing. For clarity and conciseness, the following paragraphs describe the operation of a single process line.

2.2.1 Rocket Preprocessing

Palletized rockets are kept offsite in storage igloos. Each pallet consists of 15 rockets. Each rocket is encased in a fiberglass shipping/firing tube in which it remains throughout the demilitarization process. Two rocket pallets are loaded into on-site containers (ONCs) before being trucked to the container handling building (CHB) at the site. ONCs are delivered to the CHB[1] unloading docks and, at ANCDF, TOCDF, and UMCDF, moved to the CHB unpack area (CHB UPA) adjacent to the munitions demilitarization building (MDB) UPA. At PBCDF, ONCs containing ton containers are delivered to the MDB first floor UPA.

Once in the CHB UPA (first floor UPA at PBCDF), ONCs are monitored for leakers before being unloaded. At ANCDF, TOCDF, and UMCDF, if an ONC is found to contain a leaker, the ONC is returned to the first floor CHB lift area and taken by truck to the toxic maintenance area (TMA). At PBCDF, if an ONC is found to contain a leaker, the ONC is transferred to the TMA using the TMA lift skid. ONCs with agent detected and ONCs containing leaker (overpacked) pallets (see section 3.5) are unloaded in the TMA by personnel in demilitarization protective ensemble (DPE).

[1] The CHB FAWB, programmatic process FAWB Book 30, contains more information on CHB operations to support movement of ONCs, and also contains more detail on the differences between the PBCDF CHB configuration and the CHB at the other baseline sites.

Pallets of nonleaking rockets are removed from the ONC in the CHB UPA (first floor UPA at PBCDF). At ANCDF, TOCDF, and UMCDF, pallets are unpacked manually by CHB UPA personnel and individual rockets are loaded manually into the rocket metering input assembly (RHS-FEED-101, -102) which begins the rocket processing. At PBCDF, rocket pallets are loaded onto the UPA lift (UPA-LIFT-101) and raised to the MDB second floor UPA where the pallets are unpacked and loaded into the rocket metering input assembly. At all sites handling and processing of dunnage generated from unpacking rockets is considered a site-specific activity (see FAWB Note B-1).

2.2.2 MDB Rocket Processing

Rockets advance from the rocket metering input assembly in the UPA on rocket/mine input conveyor 1 (MMS-CNVM-101, -102), located inside of an airlock assembly. Rockets are transferred to rocket/mine input conveyor 2 (MMS-CNVM-103, -104) as they enter the ECV, and conveyed through the ECV on this conveyor until they reach the munition access blast gate (MMS-GATE-101, -102). Rockets are conveyed through the blast gate onto the rocket drain station (RDS) input conveyor that conveys the rocket to the RDS of the rocket shear machine (RSM)[RHS-RSM-101, -102]. At the RDS, the rocket is punched with two drain holes and a vent hole[2]. Agent is drained from the two drain holes and transferred to the agent quantification tank before being sent to the agent holding tank in the TOX.

After draining, the rocket is rotated to minimize agent dripping and conveyed to the feed conveyor for the rocket shear station (RSS) of the RSM. At the RSS, the rocket is sheared into eight sections (see FAWB Note B-4). The first section cut, the fuze, is dropped onto the RSM/BSR & MIN discharge blast gate (MMS-GATE-103, -104) and fed to the DFS feed chute with the tail section from the previous rocket. The next four pieces, sections 2 through 5, are fed together, followed by feed of sections 6 and 7. The final section, the tail, is dropped onto the discharge gate and held there until the fuze from the next rocket is cut and dropped onto the gate (see FAWB Note B-5).

2.3 PROCESS DESIGN BASIS SUMMARY

The RHS is designed to perform the initial stages of demilitarization processing for M55 rockets. The RHS drains agent from rockets for collection and subsequent delivery to a LIC, and shears the drained rockets into pieces that are fed to the DFS.

The RHS is configured to have two rocket lines processing simultaneously. If one line is feeding the DFS, processing of the rocket on that line is completed prior to feeding pieces of the rocket on the other line. The processing rate of rockets is limited by the DFS, which is capable of receiving a total feed of about 40 rockets per hour from the RHS.

Rockets are demilitarized in the ECRs, which are designed to withstand the explosive force of 15 lb of trinitrotoluene (TNT) in units of equivalent explosive weight. Normal operations allow only two rockets to be in an ECR at any given time, well below the explosive material limit for the ECRs.

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[2] *At TOCDF, many GB-filled rockets were found to contain gelled/crystallized agent, which was difficult or impossible to drain. For these rockets, the RDS was bypassed (see FAWB Note B-15).*

2.4 SYSTEM BOUNDARIES AND INTERFACES

The RHS system includes equipment that extends from the UPA rocket metering input assembly, through the ECV, and into the ECRs. The RHS has a direct interface with the DFS[3]. Rocket draining operations are coordinated with the TOX system. Several plant systems are required to supply the utilities and power for the various operations, machines, and conveyors. The ECR personnel access blast doors and blast gates are interlocked with process operations. The primary interfaces include the following:

(1) Toxic Storage and Handling: Agent drained by the RDS in the ECRs is pumped to agent collection tanks in the toxic storage and handling system.

(2) DFS: Sheared rocket pieces are fed to the DFS through the feed chutes in the ECRs.

(3) Utilities: The RHS requires electric power and hydraulic power for operation of the processing and handling equipment. Plant and instrument air are used to support RHS equipment operation. Process water/decon is used to cool the shear blade on the rocket shear machine during shearing operations. At ANCDF, PBCDF, and UMCDF, process water can be sprayed, when needed, over the RSM/BSR & MIN discharge blast gates (MMS-GATE-103 and -104) to quench smoldering feed and to wash propellant into the DFS chute. At TOCDF, whatever fluid is selected for shear spray is also available for spray onto the RSM/BSR & MIN discharge blast gates.

[3] There is no interface listed for the dunnage furnace system. Final disposition of dunnage generated from rocket unpacking operations *is a site-specific activity* (see FAWB Note B-1).

SECTION 3
PROCESS DESCRIPTION

3.1 INTRODUCTION

The rocket handling system (RHS) is comprised of subsystems and components used to handle and process rockets at the demilitarization facilities. Rocket processing is accomplished in the explosive containment rooms (ECRs) where the rockets are punched and drained to remove agent and subsequently sheared into eight pieces that are fed to the deactivation furnace system (DFS) for processing. There are two similar, parallel process lines to process rockets (i.e., lines A & B). Similar equipment, components, instrumentation, and controls are provided for each process line. For clarity and conciseness, the following subsections describe the operation of equipment associated with a single, process line. When tag numbers are specified, line A numbers are used; however, the same component or instrument exists for line B with a different tag number/name.

Rockets are manually loaded into the RHS rocket metering input assembly in the unpack area (UPA) and automatically transported by conveyors through the explosive containment vestibule (ECV) to the ECRs. The RHS processing and handling equipment is described in detail in the following subsections.

3.2 ROCKET PROCESSING EQUIPMENT

Rockets are processed in the ECR by the rocket shear machine (RSM)[RHS-RSM-101]. A maximum of two rockets can be processed by the RSM at any one time. One rocket is drained at the rocket drain station (RDS)[1]; while, the other is sheared at the rocket shear station (RSS). The drained agent is measured and sent to the toxic cubicle (TOX). Sheared rocket pieces are sent to the DFS.

Safety concerns prohibit the shearing and/or punching of rockets while any munitions access the blast gate or DFS feed gate is open, or while the personnel access blast door is open (i.e., defined as not closed). When either the shear blade or punches are not retracted, the doors and gates are interlocked closed. The door and gate position switches are wired into the RHS controller, and are displayed on the process control screen. The various gates in the ECR can be controlled from the RHS control screens.

The munitions access blast gates (PHS-GATE-101 and PHS-GATE-103) used for projectile/mortar processing[2] are not required in the rocket campaigns. These gates remain closed throughout the rocket campaign. Opening a projectile-line, munitions

[1] *At TOCDF, many GB rockets were found to have gelled/crystallized agent, which was difficult or impossible to drain. For these rockets, the RDS was bypassed and the RSM processed only one rocket at a time (see FAWB Note B-15).*

[2] *PBCDF does not have these gates.*

access blast gate stops the RSM. The gates must be closed and the closed position switches active, or the gates must be locked closed and the position switch active, before starting the rocket campaign.

3.2.1 Rocket Shear Machine

The RSM is comprised of two major workstations: the RDS and the RSS. The RDS consists of the input conveyor, rotator, top and bottom clamps, vent punch, front and rear drain punches, lift table, and positive stop. The RSS is divided into two functional groups: the rocket transport assembly consisting of the feed conveyor, collar stops, and pusher assembly; and, the shear assembly consisting of the shear station and the decon/water spray valve.

RDS and RSS operations are controlled by sequencers. The RDS and RSS sequencer tables, depicting all major and minor steps, are included in Appendix D.

3.2.1.1 Rocket Drain Station

Rockets are transported into the ECR by the RDS input conveyor as they are conveyed out of the ECV by rocket/mine input conveyor 2 (MMS-CNVM-103). The input conveyor is hydraulically driven and controlled through a hydraulic valve manifold.

With the munition access blast gate (MMS-GATE-101) open and the positive stop cylinder at the drain station raised, the RDS input conveyor motor is started. The positive stop blocks the front end of the shipping/firing tube, thus stopping the rocket. After the rocket is in position at the stop, the blast gate is closed, the rocket is clamped, the vent and punch cylinders are extended, and the rocket is punched and drained.

The top clamp cylinders are hydraulically linked and operate simultaneously. The top clamp cylinders are extended immediately after the bottom clamp cylinder. The bottom clamp remains extended (i.e., clamped) throughout the drain cycle. The bottom clamp maintains a seal around the drain holes to ensure maximum suction from the agent *transfer* pump *(ACS-PUMP-109)*.

The RDS input conveyor is stopped after the rocket is clamped. The rear drain punch cycles (i.e., extends and retracts) and the vent punch extends before the front drain punch cycles. After cycling the front drain punch, the vent punch is retracted. The drain timer starts when all punches have been cycled.

Agent is drained into the agent quantification system (AQS) tank for the duration of the drain timer (see Subsection 3.2.1.4).

After the rocket has been drained and the amount collected has been verified, the clamps are retracted and the rocket is rotated 90° in the counterclockwise direction when looking at the tail-end of the rocket. Rotating the rocket minimizes any residual agent from dripping out of the rocket while it is being transferred and sheared.

The sequence of operation for rotating the rocket is as follows: clamp cylinders retracted, positive stop cylinder retracted (stop raised), lift table cylinders extended (lift table raised), rotator rotated to turn rocket 90°; lift table cylinders retracted (lift table lowered), rotator rotated back to the start position (rotator reset), RDS input conveyor started forward (rocket indexed).

The RDS input conveyor starts forward if the RSS is ready to receive a rocket. The RDS input conveyor remains running until the rocket clears the RDS and is detected at the RSS. With the drain station empty, the RDS generates a demand for rockets and resets the RDS cycle.

3.2.1.2 Rocket Shear Station

The RSS receives drained rockets from the RDS and cuts the rocket into eight sections (see FAWB Note B-4). The first cut is made approximately 4.5 in. from the tip of the rocket. This cut separates the fuze, or the explosive-initiating components, from the rest of the body, which contains explosive and propellant components. This separation avoids creating an explosive combination within the DFS rotary kiln.

The rocket is moved into position by the feed conveyor, which is a hydraulically-driven roller conveyor. As a rocket moves past the fiber-optic sensors next to the shear blade assembly, the collar stops are extended. The conveyor stops when the rocket is seated at the RSS collar stops. Then, the pusher is activated and moved to hold the rocket against the collar stops while the fuze is cut. After the fuze is cut and the shear blade retracted, the collar stops retract to allow the pusher to index the rocket forward for the remaining cuts.

A count of the number of rockets processed is based on the sequencer. When the sequencer reaches the last step after the last rocket piece has entered the DFS chute, the total rocket demilitarized count is incremented. This total is displayed in the control room (CON). The incremental shear blade counter is reset every time a rocket is brought into the first-cut position.

The rockets are fed to the DFS from one ECR after the DFS controller cycles the feed gates. The RSM controller monitors the top feed gate closed position switch. The tail of the previous rocket and the fuze of the current rocket are followed by a 30-second time delay. During this time, the RSM cuts sections 2 through 5, feeds sections 2 through 5, and cuts sections 6 and 7. Then, there is a 10-second time delay. The RSM feeds sections 6 and 7, pushes the tail, and initiates the restart sequence (see FAWB Note B-5). Therefore, one rocket is processed completely before alternating to the other ECR to feed the next rocket. The approximate cut lengths used for GB rocket shear processing at TOCDF are shown in Table 3.1.

The communications required between the RSM and other plant systems are listed in Appendix G.

The shear blade is cooled by a spray system that can use either water or decon. Decon can be sprayed through the system by realigning a remotely controlled, three-way valve (42-HV-286). When processing GB rockets, decon is used; water is used for VX rocket processing (see FAWB Note B-6). The valve opens just before the shear blade extends and closes immediately after the shear blade retracts. The cooling water is required to prevent ignition of the rocket energetic material. The spray also rinses energetic and agent residue from the blade, minimizes agent-vapor generation, lubricates the blade, and helps to control dust in the ECR.

To cut a rocket, the rocket controller determines the rocket position based on input from an encoder on the pusher. The encoder counts off the relative position of the rocket

based on the home position. When the rocket is first staged, approximately 4.5 in. of the rocket nose overhangs the shear blade. At this time, the fuze is sheared and the RSS is set to begin indexing and shearing.

Table 3.1 TOCDF Rocket Shear Machine Cut Lengths[1]

Cut Length No.	Approximate Length (in)
1	4.7
2	8.8
3	9.0
4	10.0
5	11.9
6	11.9
7	9.6
8	16.2

[1] Based on TOCDF ECP TEMP-2006-RSM (see FAWB Note B-4).

3.2.1.3 DFS Feed Chute and Gate Assembly

The DFS feed chute and gate assembly is controlled by the DFS controller (see the DFS FAWB, Programmatic Process FAWB Book 25).

3.2.1.4 Agent Quantification System

The AQS provides a vacuum source that is used to draw agent out of the rocket, and a collection tank where it is held prior to transfer to the agent holding tank in the TOX. Each AQS consists of an agent filter (ACS-FILT-103), AQS verification tank (ACS-TANK-103), agent transfer pump (ACS-PUMP-109), and associated valves, piping and instrumentation. Differences between *site* configuration*s* are noted in the following descriptions.

Agent is drained from the rocket to the agent filter, transferred to the AQS verification tank for quantification, and then transferred to the agent holding tank in the TOX. *The agent transfer pump begins running when a rocket is brought into the ECR to ensure that a good vacuum is drawn in the AQS prior to draining operations. It runs throughout the drain sequence until the rocket is rotated in preparation for transfer to the shear station.* The AQS tank vacuum valve remains open for most of the sequence to maintain a vacuum in the AQS tank. It closes during quantification of agent, remains closed while the tank is drained, and reopens when the RDS is ready to receive the next rocket.

Prior to punching the rocket, the PLC ensures that there is sufficient vacuum in the AQS to proceed with the drain sequence. If the AQS system pressure is above a specified value, the RDS sequencer stalls until the vacuum is adequate for draining. This check is

performed with the AQS tank vacuum valve open and the strainer vacuum[4]/drain valves closed.

With sufficient AQS vacuum, the rear punch extends and retracts followed by extending the vent punch, cycling the front punch, and finally retracting the vent punch. Agent draining operations begin when all punches are retracted. The drain time timer starts and the strainer drain valve opens.

The AQS vacuum draws agent from the rocket into the agent filter. TOCDF uses a simplex strainer *for filtering*; follow-on sites use duplex strainers (see FAWB Note B-7). The duplex strainers are equipped with separate strainer vacuum/drain valves associated with each strainer basket. A CRO uses a hand-switch to position a three-way valve to direct agent to one of the strainer baskets. This selection determines the strainer drain valve that *is* operated during the drain sequence.

With the strainer drain valve open, agent is drawn through the filter and into the AQS verification tank. After the drain time timer finishes, the AQS tank vacuum valve closes. After a short time delay to allow the liquid to settle, the AQS tank level indicating transmitter (51-LIT-51) is brought online by opening the two AQS tank level sensor isolation valves (51-XV-55A & 55B *@ AN/TE; 51-XV-70A & 70B @ PB/UM*)[see FAWB Note B-8]. A differential-pressure level detector senses the AQS tank level. The strainer drain valve remains open during verification of agent tank level to ensure that the pressure in the AQS tank headspace is in equilibrium with the ECR room pressure.

If the agent level measured in the AQS tank ever exceeds twenty inches a TANK LEVEL HI alarm *(alert at AN/TE; see Appendix C)* is sent to the CON.

The PLC compares the measured agent level in the AQS tank against the nominal fill level for the M55 rocket. If the agent level measured in the AQS tank is 95% or more of the nominal level, the rocket is considered sufficiently drained. The AQS tank drain valve is opened and the bottom drain, upper and vent clamps are retracted. Agent is drawn out of the AQS tank and sent to the TOX. If the agent level in the AQS tank is not zero by the time the AQS tank drain valve has been open for 15 seconds, a TANK NOT DRAINING alarm *(alert at AN; see Appendix C)* is sent to the CON. The timer for this alarm*/alert* starts when the AQS tank drain valve indicates OPEN. When the AQS tank level LIT indicates an agent level less than the minimum required for three seconds, the AQS tank LIT isolation valves close, the AQS tank drain valve closes, and the AQS tank LIT purge valve (*51-XV-70 @ AN; 51-XV-107 @ PB/UM;* 51-XV-55C *@ TE*) opens for 15 seconds to purge any agent from the sensing line (see FAWB Note B-9). Purge air is supplied from the instrument air system. Finally, the strainer drain valve and AQS tank drain valve close and the drain cycle is complete.

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[4] Strainer vacuum valves are no longer used in the RDS sequence and are always closed. ANCDF has removed the valves and piping from the AQS system (see FAWB Note B-16).

If the agent level measured in the AQS tank is less than 95% of the nominal level, the CON operator can use the REPEAT function to repeat the drain sequence. The decision to repeat the drain sequence is based on two items: (1) the amount of agent drained from the rocket as indicated by the LIT, and (2) the amount of agent currently being processed in the DFS, which is calculated from the agent heel left in the previously processed rockets.

A rocket that does not drain sufficiently cannot be fed to the DFS if its agent heel causes the DFS to exceed the allowable hourly feed rate. When the agent heel in the rocket no longer exceeds the allowable feed rate, the rocket can be sheared and fed to the DFS. DFS allowable hourly feed rates are discussed in the DFS FAWB (Programmatic Process FAWB Book 25).

The AQS tank level sensor's purge valve is interlocked from opening if either of the isolation valves connecting the sensor to the line is OPEN. This is necessary to prevent the higher-pressure purge air from being fed to a delicate instrument.

Agent drained from the rocket agent cavity is measured by the AQS and recorded by the PLC. This amount is added to the total quantity of agent drained for the day (i.e., 24-hour period running from midnight to midnight). The PLC subtracts the amount drained from the nominal fill value for an M55 rocket to determine the amount of agent heel remaining in the rocket. This agent heel is fed to the DFS along with the sheared rocket. This amount of heel is added to a rolling total of agent fed to the DFS each hour to ensure that the maximum hourly feed rate is not exceeded.

3.3 ROCKET HANDLING EQUIPMENT

3.3.1 UPA Rocket Handling

3.3.1.1 Rocket Metering Input Assembly

The UPA operators manually load rockets into the rocket metering input assembly (RHS-FEED-101). The rocket metering input assembly consists of a feed table, rotating drum, and reject table. The rocket metering input assembly is integral with the rocket/mine-input conveyor 1 and airlock assembly (MMS-CNVM-101). The input conveyors and the airlock separate the UPA from the ECV. The rocket exits the rocket metering input assembly drum via a flapper gate.

When a rocket is loaded, it moves by gravity to the load position next to the drum. A diffused-type infrared (IR) photoelectric sensor detects the presence of a rocket in the feed position. This causes the PLC to check the orientation switch beneath the slot in the feed table.

The orientation switch is a lever-actuated, limit-type switch that senses the collar on the rocket shipping tube. If the collar is detected, the rocket is flagged as oriented; otherwise, the rocket is flagged as misoriented. In either case, the drum then is rotated clockwise, or forward, to the home position. A slot in the drum rotates past the feed position, allowing the rocket to roll into the slot. The rocket then is carried to the home position. With the drum at the home position and the drum slot full, as detected by another IR sensor (i.e., ROCKET DETECTED), the PLC rotates the drum either forward (i.e., clockwise) or reverse (i.e., counterclockwise), depending on the orientation switch status.

The PLC checks to see if the misoriented flag in the PLC is set. If the flag is set, the drum is rotated in reverse until the home position switch is tripped. The rocket falls out of the drum slot onto the reject table located below the feed table. After six rockets have been discharged to the reject table, an alarm *(alert at AN; see Appendix C)* is generated and indicated in the CON; the PLC stops the rocket metering input assembly when the next reject rocket is detected. The reject table then must be cleared before processing can resume.

The drum continues to rotate in reverse until the PLC stops the drum at the home position. In this position, the two slots in the drum are pointed straight up and down and both slots are empty. The feed cycle is repeated whenever a rocket is detected in the feed position and the top slot is empty.

If the rocket is correctly oriented and no rockets are detected on either rocket/mine input conveyor 1 or 2, the drum is rotated forward. If a rocket is at the feed position on the feed table, it is loaded into the drum. The drum continues to rotate in forward until the PLC stops the drum at the home position, where the feed cycle is reset. The rocket that was originally in the slot is dropped onto rocket/mine input conveyor 1. The flapper gate through which the rocket exits is hinged to remain closed against the differential air pressure between the UPA and the ECV. The rocket is moved to rocket/mine input conveyor 2 in the ECV where it is stopped by a pneumatically operated stop.

Operation of the drum is controlled by a reversible, electric-brake motor and an electrically driven clutch assembly. Normally, the drum motor is started in forward and continues to run until a misoriented rocket is found. At that time, the motor is stopped by the PLC and restarted in reverse. The control system has individual control of both the motor and the clutch operations. In addition to CON operations, local control stations also are provided that control the following drum movements: motor-start forward, motor-start reverse, motor stop, and clutch engage/disengage. Local control is enabled by placing the local-off-remote (LOR) switch in the LOCAL position. CON control is enabled only when the CON senses the LOR switch in the REMOTE position.

When the CON and PLC remotely operate the rocket metering input assembly, the PLC sequences the movement of the drum with the conveyors and the RSM.

3.3.1.2 Rocket/Mine Input Conveyor 1 and Airlock Assembly

Rocket/mine input conveyor 1 and airlock assembly (MMS-CNVM-101) is an integral part of the rocket metering input assembly. The conveyor receives rockets as they roll out of the metering drum and sends them forward to rocket/mine input conveyor 2 (MMS-CNVM-103) in the ECV. A retro-reflective IR sensor detects the presence of a rocket on the conveyor. The presence of a rocket is indicated in the CON. The failure to clear the sensor by the rocket breaking the beam within a time period generates a FAIL TO ARRIVE alarm *(alert at AN; see Appendix C)* in the CON.

Rocket/mine input conveyor 1 is an electric, motor-driven, roller conveyor designed to allow the motor to run continuously during processing. The PLC monitors the conveyor's motor-starter, auxiliary contact and generates a malfunction alarm *(alert at AN/TE; see Appendix C)* when conveyor status does not agree with the desired control. Hydraulically powered conveyors do not have a malfunction alarm. The conveyor can be

operated by local control stations or remotely by the CON. An LOR switch selects the mode of operation.

The LOR switch must be in the REMOTE position for the CON to have control over the conveyor motor. The motor is locked out from the CON by placing the LOR switch in either LOCAL or OFF positions. With the LOR switch in the REMOTE position, the CON can start the conveyor motor in either forward or reverse, and also can stop the conveyor motor. With the LOR switch in the LOCAL position, the local operator can perform these same functions. The control room operator (CRO) can stop operating equipment regardless of the operating mode (i.e., LOCAL or REMOTE).

3.3.2 ECV Rocket Handling

Normally, rockets are received in the ECV from the rocket metering input assemblies. When processing leakers, DPE workers manually load them onto rocket/mine input conveyor 2.

Rocket/mine input conveyor 2 is similar in operation to rocket/mine input conveyor 1, except there is an added stop. The stop consists of a steel plate that is raised and lowered by a pneumatic cylinder between the rollers, near the discharge end of the conveyor. Rockets are stopped by the raised stop. When the stop is raised and a rocket is detected as present at the stop, the conveyor rollers stop running. To continue processing, the stop is lowered. In AUTO, after the stop is lowered, the conveyor rollers start running to move the rocket towards the ECR. The stop can be controlled either locally or remotely.

The line A conveyor *was originally equipped* with a swing roller at the discharge end to bridge the gap between the end of the conveyor and the start of the next conveyor in the ECR. It *was* provided for use during the mine campaign. *Because of modifications to the mine machine input conveyor, the swing roller on rocket/mine input conveyor 2 is no longer needed and has been removed at ANCDF and UMCDF. PBCDF also plans to remove it* [7]. The swing roller *was* hardwired to operate in concert with the ECR munitions access blast gate.

3.4 RHS INITIALIZATION, STARTUP, AND PARK

The first step in operating the RSM is to ensure that all the conditions are satisfied to allow the system to run. This includes the Limiting Conditions of Operation (LCO) checklist and the pre-operational checklist. One of the conditions required is to select the proper campaign from the CAMPAIGN SELECT screen (CSS). The operator must select the M55 entry under the appropriate ECR, depending on which ECR is employed. The second campaign selection task is to choose the agent type to be processed. Once the selections are made, the operator must verify the selection by activating the VERIFY CAMPAIGN SELECTION icon and depressing the START key. When proper selection is made, the icon turns green, indicating the system is configured for processing rockets.

The operator begins system initialization after the correct campaign is selected and verified. If both ECRs are to be in operation, then both lines need to be initialized

[7] The mine handling system (MHS) FAWB [Programmatic Process FAWB Book 23] contains more information about operation of the swing roller.

separately. System initialization restores the machine from the PARK condition and prepares the line for processing. In order to initialize, the operator resets all emergency stops and rope switches, and sets all associated equipment to automatic and configures the hydraulics for the machine. The rocket machine's sequencer also must be in automatic to allow the initialize step to occur.

Initialization prepares the line for processing by running all the conveyors forward and placing devices in the operating position. The conveyors are started in order to locate any rockets remaining on the line from previous processing runs.

To start the initialization procedure, the operator accesses the ROCKET INITIALIZE screen (RLI), selects the SYSTEM INITIALIZE icon, and depresses the START key. Before the equipment will start initializing, the warning horns sound for ten seconds and the warning lights illuminate to notify plant personnel that the line is about to start. If the equipment was running within the last ten minutes, the warning lights still will be illuminated, but the warning horns are not required to sound. If the horns are required to sound, they are silenced after the 10-second delay and the equipment commences the initialization sequence. After the system is successfully initialized, the icon changes from flashing green to steady green. This notifies the operator that the system is available to be placed in the run mode and begin processing. In the event the initialization attempt fails, an alarm *(alert at AN/TE; see Appendix C)* is generated and the icon flashes red. When the FAIL TO INITIALIZE alarm*/alert* is acknowledged, the failed station attempts re-initialization.

After successful system initialization, the RHS can be placed into operation. Prior to operation, there are several interlock conditions that have to be satisfied. The system must verify that all necessary utilities are up and running, the DFS and the TOX are ready for processing, and the ECR access blast doors (ECR-BLDR-101, -102), the munition access blast gates (MMS-GATE-101, PHS-GATE-101, -103), and the RSM/burster size reduction machine and mine machine (RSM/BSR&MIN) discharge blast gate (MMS-GATE-103) are secured. Also, all rope switches and local emergency stops must be reset. When all the conditions are satisfied, the operator can issue the SYSTEM START command by accessing the RLI screen, selecting the SYSTEM START/STOP icon, and depressing the START key. If all the conditions for system start are met, the icon on the RLI screen is displayed in green and all continuously running devices are started.

At TOCDF, fiber optic sensors PLS-3, PLS-5A, PLS-5B and PLS-6 utilize an air blower system to keep the line-of-sight free from dust, dirt, debris, and vapor, etc. that could give a false indication of rocket presence. This system operates only in manual mode, is started prior to initiating feed, and is stopped following completion of rocket processing.

The RHS includes a processing rate control feature that allows rockets to process at a rate below the maximum (i.e., 38 rockets per hour). The desired rate is set by the operator on the RLI screen and maintained by the PLC. To lengthen the processing time and decrease the processing rate, the duration of the drain timer is increased to a value calculated by the PLC to give the selected rate. The processing rate is set following system start, prior to initiating feed, and can be changed at any time during operation.

Operators PARK the system when the processing run is complete. The PARK function drives all the hydraulic devices to a safe-shutdown position, or to the gravity-driven state, and de-energizes all outputs.

The system must be stopped prior to issuing the PARK command. Before stopping the system, however, the operator visually checks the line for any remaining rockets. This aids in the startup of the next processing run. To stop the automatic operation, the operator accesses the RLI screen, selects the SYSTEM START/STOP icon, and depresses the STOP key. The SYSTEM START/STOP icon turns to magenta, indicating that the system is stopped. To initiate the PARK function, the operator accesses the RLI screen, selects the PARK MACHINE icon, and depresses the START key. Once the machine stations are parked, the icon goes from flashing green to steady green. In the event the park attempt fails, an *alert (currently still an alarm at UM; see Appendix C)* is generated and the icon flashes red. The cause of the failure must be corrected before the alarm*/alert* is acknowledged. Once the cause of the failure is corrected, the operator accesses the RLI screen and depresses the ACKNOWLEDGE key. The PARK MACHINE icon returns to magenta. At this time, the operator reselects the PARK MACHINE icon, depresses the START key again, and the failed station attempts to re-park.

3.5 ROCKET LEAKER HANDLING

When agent is detected within a stockpile structure (i.e., igloo), the leaking munition is identified, removed from its pallet configuration, decontaminated, and placed in an overpack. Leaking rockets discovered in a storage igloo are overpacked in steel containers. Overpacked munitions are transferred to a separate storage igloo where the overpack containers are palletized for continued storage.

Pallets of overpacked rockets are delivered in ONCs to the UPA, similar to nonleaking munitions. Because of the overpack, however, the leakers cannot be loaded onto the rocket metering input assembly. The entire pallet is loaded onto the bypass line turntable, conveyed through the airlock into the ECV, and unpacked by workers in demilitarization protective ensemble (DPE). Each rocket is removed from its overpack and manually loaded onto rocket/mine input conveyor 2 in the ECV. Once the rockets are loaded onto the conveyor, they are conveyed into the ECR and processed in the same manner as nonleaking munitions[8]. Empty overpacks are placed in a cradle and sent to the MPF for decontamination.

Leaking rockets can also be detected after delivery of a loaded ONC to the CHB UPA (first floor UPA at PBCDF) where the ONCs are monitored before being unloaded. At ANCDF, TOCDF, and UMCDF, if an ONC is found to contain a leaking rocket, the ONC is returned to the first floor CHB lift area and taken by truck to the toxic maintenance area (TMA) [see FAWB Note B-10]. At PBCDF, if an ONC is found to contain a leaker, the ONC is transferred to the TMA using the TMA lift skid. In the TMA,

[8] *At TOCDF, some overpacked rockets were found to be fitted with end caps to seal the shipping and firing tube. The end caps were epoxied to the tube and could not be removed. For these rockets, the normal processing sequence was modified to account for the end caps (see FAWB Note B-17).*

personnel in DPE unload the rocket pallets from the ONC and place the pallets in a rocket leaker carrier on a tray assembly (see FAWB Note B-11).

At ANCDF, TOCDF, and UMCDF, the pallets are conveyed out of the TMA onto the lower munitions corridor charge car and run backwards along the bulk conveyor lines into the ECV (see the bulk container handling system (BCHS) FAWB [Programmatic Process FAWB Book 24] for descriptions of the bulk conveyor lines). The path back to the ECV includes transferring the pallets in reverse through the munitions buffer storage conveyors in the buffer storage area (BSA), up on a lift-car assembly to the munitions processing bay (MPB), in reverse on the conveyors in the MPB to the charge car in the upper munitions corridor, and then in reverse on a bypass-indexing, hydraulic conveyor to a bypass conveyor in the ECV.

At PBCDF, pallets with leaking rockets are placed in a rocket leaker carrier on a tray assembly (see FAWB Note B-11) on the TMA conveyor (TMA-CNVP-102) and conveyed out of the TMA to the bulk drain station (BDS) room onto the overpack conveyor (MMS-CNVP-134). The pallets are moved from the overpack conveyor to ton container conveyor 3 (MMS-CNVP-136) using the BDS monorail (BDS-MONO-401) and then into the lift car (MMS-LIFT-101) in the BDS room. The pallets are raised by the lift car up to the munitions corridor (COR) on the second floor and conveyed back from the COR to the ECV.

In the ECV, workers in DPE unpack the pallets and place the rockets on rocket/mine input conveyor 2. The rockets are conveyed into the ECR and processed in the same manner as nonleaking rockets*, unless they are equipped with end caps (see footnote on previous page).*

3.6 ROCKET DUNNAGE HANDLING

Both uncontaminated and contaminated dunnage is generated during the rocket pallet unpacking process. The dunnage consists of wooden pallet straps, clips, and any other packing material separating or surrounding the rocket firing/shipping tubes. If a pallet does not contain any leaking munitions, the dunnage is treated as uncontaminated dunnage. If a pallet contains a leaking rocket, the dunnage is treated as contaminated dunnage.

Uncontaminated pallets are unloaded by operators in the UPA. Dunnage removed from around leakers is assumed to be contaminated with agent and is handled in the ECV or TMA. Handling and disposal of both contaminated and uncontaminated dunnage is considered a site-specific activity (see FAWB Note B-1).

SECTION 4
COMPONENT SUMMARY

4.1 ROCKET HANDLING SYSTEM COMPONENTS

The components of RHS include the rocket metering input assembly, the rocket shear machine, conveyors, doors, gates, and associated instrumentation. Power source information for the components is listed in Table 4.1.

4.2 EQUIPMENT POWER SOURCES

Table 4.1 lists the equipment power sources for the major equipment used in the RHS based on *site drawing revisions listed in Appendix H*. Power sources are characterized as critical, essential or utility. Critical loads are powered by the UPS panelboards and do not experience an interruption in power if offsite power is lost. Essential loads are required for safe shutdown of the facility, but can tolerate an interruption in power while being loaded on an onsite emergency diesel generator (EDG). Utility loads are not required if offsite power is lost and are not powered by the onsite EDG. Only motive power sources are listed in the table; instrumentation and control power sources are not listed. In addition, hydraulically and pneumatically powered, and non-powered equipment are not included in the table.

Table 4.1 RHS Equipment Power Sources

Equipment Tag	Description	Site(s)	Power Source	Power Type
MMS-CNVM-101	Rocket/Mine Input Conveyor No.1 and Airlock Assembly (A)	AN/TE/UM	SPS-MCC-103	Utility
		PB	SPS-MCC-104	Utility
MMS-CNVM-102	Rocket/Mine Input Conveyor No.1 and Airlock Assembly (B)	AN/PB/TE/ UM	SPS-MCC-104	Utility
MMS-CNVM-103	Rocket/Mine Input Conveyor No.2 (A)	AN/TE/UM	SPS-MCC-103	Utility
		PB	SPS-MCC-104	Utility
MMS-CNVM-104	Rocket/Mine Input Conveyor No.2 (B)	AN/PB/TE/ UM	SPS-MCC-104	Utility
RHS-FEED-101	Rocket Metering Input Assembly (A)	AN/TE/UM	SPS-MCC-103	Utility
		PB	SPS-MCC-104	Utility
RHS-FEED-102	Rocket Metering Input Assembly (B)	AN/PB/TE/ UM	SPS-MCC-104	Utility

APPENDIX A

Acronyms and Abbreviations

The acronyms and abbreviations listed below are common for all of the programmatic process FAWBs:

A&I	alarm and interlock matrix
AASS	automatic agent sampling system
ABCDF	Aberdeen Chemical Agent Disposal Facility
AC	alternating current
ACAMS	automatic continuous air monitoring system
acfm	actual cubic foot per minute
ACS	agent collection system
ACSWS	acid and caustic storage and wash system
ADC	air dilution controller
AgF	silver fluoride
AHT	agent holding tank
AHU	air handling unit
AMC	Army Materiel Command
ANAD	Anniston Army Depot (Alabama)
ANCDF	Anniston Chemical Agent Disposal Facility
ANSI	American National Standards Institute
AQS	agent quantification system
AR	Army Regulation
ASA	automatic submerged arc
ASC	allowable stack concentration
ASD	adjustable-speed drive
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	acid wash system
AWFCO	automatic waste feed cutoff
BCHS	bulk container handling system
BCS	bulk chemical storage
BDS	bulk drain station
BGCDF	Blue Grass Chemical Agent Disposal Facility
BLAD	blast load attenuation duct
BMS	burner management system
BPS	burster punch station (MIN)
BRA	brine reduction area
BRS	burster removal station (PMD)
BSA	buffer storage area
BSR	burster size reduction machine
Btu	British thermal unit
°C	degrees Celsius
CAMDS	Chemical Agent Munition Disposal System
CAB	combustion air blower

CAL	chemical assessment laboratory
CAS	compressed air system
CBR	chemical, biological, and radiological (filter)
CCB	configuration control board
CCS	central control system
CCTV	closed-circuit television
CDS	central decontamination supply
CDSS	central decontamination supply system
CDTF	Chemical Demilitarization Training Facility
CEHNC	U.S. Army Engineering & Support Center, Huntsville.
CEMS	continuous emission monitoring system
CFR	Code of Federal Regulations
CGA	Compressed Gas Association
CHB	container handling building
CHWS	chilled water supply
CO	carbon monoxide (monitors/analyzers)
COM	communications system
CON	control room
COR	munitions corridor
CPA	client-Parsons authorization
CRO	control room operator
CRT	cathode ray tube
CS	crimp station (PMD)
CSS	campaign select screen
CSD	Chemical Stockpile Disposal (Project)
CV	control variable
CWC	Chemical Weapons Convention
CWS	chilled water supply
DAAMS	depot area air monitoring system
DAFC	dilution airflow controller
db	dry bulb
DC	direct current
DCD	Deseret Chemical Depot
DDESB	Department of Defense Explosives Safety Board
decon	decontamination (solution)
demil	demilitarization
DFS	deactivation furnace system
DICI	digital intercontroller communication input
DICO	digital intercontroller communication output
DMS	door monitoring system
DPE	demilitarization protective ensemble (suit)
DSA	DPE support area
dscf	dry standard cubic foot
DSIC	design and systems integration contractor
DUN	dunnage incinerator
E&M	engineering and maintenance
E-stop	emergency stop
EAC	equipment acquisition contractor
ECF	entry control facility
ECP	engineering change proposal
ECL	engineering control level

ECR	explosive containment room
ECV	explosive containment vestibule
EDG	emergency diesel generator
EHM	equipment hydraulic module
EIC	equipment installation contractor
EONC	enhanced onsite container
EPS	emergency power system
ETL	extreme temperature limit
°F	degrees Fahrenheit
FARS	fuzewell assembly (or adapter) removal station
FAWB	functional analysis workbook
FDLL	field design lessons learned (program)
FDPS	fire detection and prevention system
FEET	FAWB evolvement/evaluation team
FEM	fire extinguishing medium
FIFO	first-in-first-out
FIL	activated carbon and HEPA filter
FPD	flame photometric detector
fpm	feet per minute
FSSS	flame safety shutdown system
ft	feet
GA	general arrangement; nerve agent ethyl N-dimethylphosphoramidocyanidate ($C_5H_{11}N_2O_2P$)
gal	gallon
GB	nerve agent Sarin, isopropyl methyl phosphonofluoridate ($C_4H_{10}FO_2P$)
GC	gas chromatograph
GDL	gross detection level
GEN	emergency generator
GFE	government-furnished equipment
GLD	gross level detector
GPD	gas plasma display
GPL	general population limit
gpm	gallons per minute
gr	grain
H	blister agent mustard, made by the Levinstein process, bis(2-chloroethyl) sulfide or 2,2'-dichlorodiethyl sulfide ($C_4H_8Cl_2S_{1.5}$ [empirical formula])
H_3PO_4	orthophosphoric acid
HCl	hydrochloric acid
HD	blister agent distilled mustard, bis(2-chloroethyl) sulfide or 2,2'-dichlorodiethyl sulfide ($C_4H_8Cl_2S$)
HDC	heated discharge conveyor
HDV	hydraulic directional control valve
HEPA	high-efficiency particulate air (filter)
HLE	high-level exposure
HOA	hand-off-auto
hp	horsepower
hr	hour
HRA	health risk assessment
HT	60% by weight blister agent distilled mustard and 40% agent T [bis[2(2-chloroethylthio)ethyl] ether]
HVAC	heating, ventilating, and air-conditioning

HVC	heating, ventilating, and cooling
HYD	hydraulic power
HYPU	hydraulic power unit
HYVM	hydraulic control valve manifold
I/O	input/output
I-lock	interlock
IAS	instrument air system
icfm	inlet cubic foot per minute (acfm at the inlet)
ICS	instrumentation and control system
ID	induced draft
	inside diameter
IDLH	immediately dangerous to life and health
IGS	inertial gas sampling
in.	inch
in. wc.	inches water column
IR	infrared
ISO	International Standards Organization
JACADS	Johnston Atoll Chemical Agent Disposal System
kW	kilowatt
L	Lewisite (blister agent)
LAB	laboratory
lb	pound
lb/hr	pounds per hour
LCO	limiting condition of operation
ln	line
LIC	liquid incinerator
LIFO	last-in-first-out
LIT	level-indicating transmitter
LOQ	limit of quantification
LOR	local-off-remote
LPG	liquefied petroleum gas
LQAP	Laboratory Quality Assurance Plan
LQCP	Laboratory Quality Control Plan
LR	local-remote
LSB	LSS bottle filling system
LSS	life support system
LVS	low volume sampler
mA	milliamperes
MCC	motor control center
	mine component container
MCP	Monitoring Concept Plan
MDB	munitions demilitarization building
MDM	multipurpose demilitarization machine
MEL	master equipment list
MER	mechanical equipment room
mg/m^3	milligrams per cubic meter
MIG	mine glovebox
MIN	mine machine
MMS	mine and munitions system
MPB	munitions processing bay
MPF	metal parts furnace

MPL	multiposition loader
	maximum permissible limit (for DPE)
MPRS	miscellaneous parts removal station (PMD)
MSB	monitor support building
MSS	munition sampling system
NaOCl	sodium hypochlorite
NaOH	sodium hydroxide
NCRS	nose closure removal station (PMD)
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NG	natural gas
NRT	near real time
O&M	operations and maintenance
OBV	observation corridor
ONC	onsite container
OS	orientation station (MIN)
OSHA	Occupational Safety and Health Administration
OVT	operational verification testing
P&A	precision and accuracy
P&ID	piping and instrument diagram
PA	public address
PAS	pollution abatement system
PBA	Pine Bluff Arsenal
PBCDF	Pine Bluff Chemical Agent Disposal Facility
PCS	primary cooling system
PCT	preconcentrator tube
PDAR(S)	process data acquisition and recording system
PDE	projectile deformation equipment
PDIT	pressure differential indicator transmitter
PDS	pull and drain station (MDM)
	punch and drain station (MIN)
PFD	process flow diagram
PFS	PAS filter system
pH	potential of hydrogen (a measure of acidity or alkalinity)
PHS	projectile handling system
PID	proportional integral derivative
pig	overpacked shipping container
PKPL	pick-and-place machine (also PPL)
PLA	plant air system
PLC	programmable logic controller
PLL	programmatic lessons learned (program)
PLS	proximity limit sensor/switch
PMB	personnel and maintenance building
PMCD	Program Manager for Chemical Demilitarization
PMCSD	Project Manager for Chemical Stockpile Disposal
PMD	projectile/mortar disassembly (machine)
PML	personnel, maintenance, and laundry (complex or building)
POT	potable water
PPL	pick-and-place machine (also PKPL)
PPS	primary power system

PQAP	Participant Quality Assurance Plan
PRW	process water
PSB	process support building
psig	pounds per square inch, gauge
PSV	pressure safety valve
PUB	process and utility building
PUDA	Pueblo Depot Activity (Colorado)
PWR	power systems (unit substation, uninterruptible power supply, battery rooms, and emergency generator)
RCRA	Resource Conservation and Recovery Act
RDS	rocket drain station
RDTE	research, development, testing, and evaluation
RFI	Request for Information
RHA	residue handling area
RHS	rocket handling system
rpm	revolutions per minute
rps	revolutions per second
RSM	rocket shear machine
RSS	rocket shear station
RTAP	real-time analytical platform
SC	systems contractor
SCBA	self-contained breathing apparatus
scf	standard cubic foot
scfh	standard cubic feet per hour
scfm	standard cubic feet per minute
SCW	secondary cooling water
SCT	systems contractor for training
SDS	spent decon system
sg	specific gravity
SGS	steam generation system
SOP	standing operating procedure
SPS	secondary power system
SRS	slag removal system
TBD	to be determined
TCE	treaty compliance equipment
TEAD	Tooele Army Depot (Utah)
TIP	tray information packet
TM	Army Technical Manual
TMA	toxic maintenance area
TNT	trinitrotoluene (explosive)
TOCDF	Tooele Chemical Agent Disposal Facility
TOX	toxic cubicle
TSCA	Toxic Substances Control Act
TSHS	toxic storage and handling system
TSO	Tight shutoff
TWA	time-weighted average
UE&C	United Engineers and Constructors
UMCDF	Umatilla Chemical Agent Disposal Facility
UPA	unpack area
UPS	uninterruptible power supply
UV	ultraviolet

VCR	video cassette recorder
VX	nerve agent, O-ethyl S-(2-diisopropylaminoethyl) methylphosphonothiolate ($C_{11}H_{26}NO_2PS$)
wc	water column
WTS	water treatment system
XXX	3X level of decontamination
XXXXX	5X level of decontamination (minimum of 1000ºF for 15 minutes)
Z	general designation for monitoring hazard level

APPENDIX B

FAWB Notes

Appendix B contains notes to expand upon the descriptions contained in the text of the FAWB. The notes include related experiences at TOCDF and the Johnston Atoll Chemical Agent Disposal System (JACADS).

B-1 Per discussions held during the comment resolution matrix meeting for the HVAC FAWB on 9-10-98, the programmatic process FAWBs are being prepared under the assumption that the DUN, DUN PAS and DUN PFS (at ANCDF) systems will not be used for processing at ANCDF, PBCDF, TOCDF, or UMCDF. A programmatic process FAWB for the DUN/DUN PAS/PFS is not being developed. Handling and disposal of dunnage is considered a site-specific activity that has not yet been determined. The DUN, however, is installed at TOCDF and remains in the designs at ANCDF and PBCDF. At UMCDF, the DUN was being removed from the design, however, its use at UMCDF is currently being studied.

B-2 Per discussions held during the comment resolution matrix meeting for the PAS FAWB on 11-10-98, the programmatic process FAWBs for the PAS and PFS have been combined into a single PAS/PFS FAWB that applies to ANCDF, PBCDF, TOCDF, and UMCDF.

B-3 The acid/caustic storage and wash system is no longer used at TOCDF and has been removed from the ANCDF, UMCDF, and PBCDF site designs by ECPs ANAC343PAS, R1, UMAC160PAS, R1, and PBAC340PAS, respectively.

B-4 Rocket cut lengths at TOCDF are specified in TOCDF ECP TEMP-2006-RSM. Rockets are sheared into eight sections (seven cuts). The design basis for ANCDF, UMCDF, and PBCDF calls for the rockets to be sheared into seven sections (six cuts). The TOCDF ECP was reviewed by the FDLL and will be implemented at future sites by cloning of the software (i.e., the operational configuration at TOCDF will be implemented at the follow-on sites). Encoder values set to specify the cut length will vary from machine to machine and from site to site due to subtle differences between the machines. The encoder values in the baseline code delivered to the follow-on sites will match the TOCDF encoder values and may require adjustment to achieve the desired cut lengths.

UMCDF is developing a revised cut sequence for rockets with tetrytol busters. The revised sequence includes an additional cut in the burster section for a total of eight cuts. The other burster-section cuts are smaller than for normal rockets. When processing these rockets, the DFS feed sequence will also be revised (see FAWB Note B-5).

B-5 The rocket pieces feed sequence was optimized during OVT 4 at JACADS. The highest throughput rates were achieved using a three-dump sequence in which the fuze of one rocket is dumped with the fin/tail assembly of the previous rocket. The second dump feeds the agent cavity, which is cut into four pieces, and the third dump feeds the two motor sections. The motor section is cut into three pieces; the third is the fin/tail assembly that is fed to the DFS with the fuze of the next rocket. The design documentation for the follow-on sites does not match the TOCDF configuration (i.e., DFS mass and energy balance calculations assume only seven rocket pieces with a different dump sequence); however, it is planned to have the operational configuration at TOCDF implemented at the follow-on sites.

In conjunction with a revised cut sequence for rockets with tetrytol busters (see FAWB Note B-4), UMCDF is developing a revised feed sequence for them as well. The feed sequence will include six or seven dumps (rather than three) in order to spread out the explosive feed to the DFS.

B-6 Water was used for shear blade spray during OVT2, the VX rocket campaign, and found to be acceptable. Water was initially used during OVT 1, the GB rocket campaign, and agent levels in the ECR were high. After switching to decon spray on the shear blade, agent levels were reduced by approximately 50%. The TOCDF SOP specifies that decon is used during GB rocket processing and water is to be used during VX rocket processing. The design documentation for the follow-on sites does not match the TOCDF configuration (i.e., DFS mass and energy balance calculations assume that decon is used for VX rockets); however, it is planned to have the operational configuration at TOCDF implemented at the follow-on sites.

B-7 Duplex agent strainers were incorporated into the RHS AQSs at ANCDF, PBCDF, and UMCDF by ECPs ANAP0444AQS R1, PBAP0388AQS R1, and UMAP0218AQS R1, respectively. At TOCDF, since piping and instrumentation were already installed, it was determined to be too costly to replace the single filter with a duplex strainer.

B-8 The configurations for the AQS verification tank level transmitter (51-LIT-51 [51-LIT-57]) sensing lines at TOCDF and follow-on sites are different in the referenced documentation. TOCDF has two three-way solenoid valves (i.e., AQS tank level sensor isolation valves 51-XV-55A & 55B) that isolate the transmitter during purging of the sensing lines to prevent the purge air from disrupting the calibration of the transmitter. The valves vent to atmosphere when in the closed position to prevent pressurizing the level sensing lines associated with 51-LIT-51. In January 1999, the PM-CSD Acquisition Team requested that ANCDF, PBCDF, and UMCDF field offices direct the systems contractor to prepare field ECPs to incorporate the TOCDF air bubbler system, including the TOCDF AQS verification tank level transmitter sensing line configuration, into the RSM AQS.

Therefore, ANCDF, PBCDF, and UMCDF will have an RSM AQS similar to the TOCDF RSM AQS.

B-9 At TOCDF, the original purge time for the AQS tank LIT sensing line was two seconds. After encountering problems with the LIT reading high levels, a software change was made to increase the duration of the purge to fifteen seconds because it was suspected that the LIT was not being properly purged after the completion of the drain cycle. No further problems with the LIT reading high levels have been seen at TOCDF since this change has been incorporated.

B-10 At TOCDF, Operation 7 in SOP TE-SOP-093, Unpack Area Operations, covers processing of ONCs containing leakers in the UPA if the ONC ACAMS reading is < 40 TWA or the ONC has a bad seal with an ACAMS reading ≥40 TWA. ONCs with a good seal and an ACAMS reading ≥40 TWA are sent to the TMA for processing.

B-11 Under ECP TEMP-1344-TMA, TOCDF fabricated two lightweight, leaker rocket carrier containers to transport leaking rocket pallets from the TMA to the ECV. Each carrier can transport a single pallet. The ECP was reviewed by the FDLL and similar containers will be used at the follow-on sites.

B-12 TOCDF originally had a single fiber optic sensor (42-1PLS-5 [42-2PLS-5]) that indicated when a rocket had passed the pusher engagement point and was ready to be sheared. Under ECP-1702-RSM, TOCDF implemented a change to add a fiber optic sensor next to 42-1PLS-5 that must be made while 42-1-PLS-5 is clear before the shear blade can extend to shear a rocket. The change was made to prevent a rocket having a broken indexing ring from being sheared in the wrong place. The new sensor was tagged as 42-1-PLS-5B and 42-1PLS-5 was retagged to be 42-1PLS-5A. The ECP was reviewed by the FDLL passed forward to future sites via the Equipment Fabrication Contractor. The design drawings do not show the revised configuration.

B-13 *Under ECP TEMP2529CON R1, TOCDF converted three single operator consoles that were used for DPE entry monitoring to dual workstation consoles. One of the three consoles was converted to an additional demil workstation. The E-stops on this console are hardwired with other E-stops so they do not have unique, discreet inputs to the PLC. The additional E-stops are not shown on TOCDF P&IDs. At other sites, an additional demil console (ICS-CONR-109) was added by ECPs ANAC262SRL, PBAC303SRL, and UMAC118SRL. The ICS-CONS-109 E-stops were added to the PBCDF and UMCDF design drawings by PBAC1014ICS and UMAP928ICS, respectively. At ANCDF, ANAP1120ICS was approved to add the E-stops to the drawings, but the drawings have not yet been revised.*

B-14 In the October 1997 TOCDF code, the ECR-Explosion-Detected interlocks for many of the Line A & B RSM devices did not match. The EIC has indicated that

for follow-on sites, the Line A and B interlocks will be the same; the ECR-Explosion-Detected interlock will be included for all devices as shown in the RDS and RSS A&I matrices for Line B. TOCDF has been notified of the discrepancies.

B-15 Under ECP TEMP2450RSM, TOCDF modified the rocket processing code to allow bypassing of the RDS for rockets whose GB-agent fill was suspected to be gelled/crystallized. The code modification included adding a selection to the rocket line initialize screen, RLI, for gelled rockets. When selected, the entire sequence at the RDS was bypassed, and the rocket was conveyed directly to the RSS, where it was processed normally. All agent was fed directly to the DFS with the rocket. TOCDF processed 5,287 rockets, from rocket lot #s 1033-55-1076, 1033-55-1077 and 1033-61-1086, as gelled rockets. During gelled-rocket processing, TOCDF was limited by their permit with the State of Utah to feed only 1 rocket per hour to the DFS.

ANCDF, PBCDF, and UMCDF have reviewed the TOCDF ECP for potential implementation at their sites. ANCDF has identified a significant portion, up to 33%, of their M55 rocket stockpile, that may contain gelled agent. Therefore, they plan to implement similar changes as they prepare to process the suspect rockets lots. PBCDF believes that none of their rocket lots contain gelled agent, however, there are a few lots that have a slight possibility of having it. The current plan at PBCDF is to attempt to drain all rockets normally. If any gelled-agent rockets are encountered, they will consider implementing the TOCDF software modification at that time. UMCDF has identified only a small number of rockets that they suspect of containing gelled agent, however, they are also implementing a gelled-rocket processing sequence. The follow-on sites are considering adding a vent punch at the RDS for gelled rockets instead of completely bypassing it, as TOCDF did.

B-16 TOCDF found that, during rocket processing, fiberglass, crystals, etc. can bypass the AQS strainer by being drawn through the strainer vacuum line, which resulted in plugging of the agent lines to the ACS tanks. To prevent this occurrence, TOCDF issued ECP TEMP2469RSM to modify the PLC code and remove the strainer vacuum valve from the control sequence. After CDTF testing of this configuration with the universal AQS, it was determined that vacuum lines on the rocket AQS strainers provide no significant advantage to the draining of rockets. As a result, ANCDF removed the strainer vacuum lines and valves via ECP ANWP1574ACS. Removal of these lines also facilitates maintenance and personnel access in the ECR. The PLC sequence has been revised at PBCDF and UMCDF to remove operation of the strainer vacuum valve from the control sequence. They are still reviewing the ANCDF ECP for removal of the hardware.

B-17 TOCDF found that some of their overpacked rockets had end caps epoxied to the shipping and firing tube to prevent agent from leaking from the tube into the overpack container. The end caps added length to the rocket, which created a

mismatch between the rocket length and the encoder settings at the shear station. If processed normally, the cuts at the shear station would be made in the wrong positions. TOCDF modified the rocket processing code to adjust the encoder setpoints when processing rockets with end caps. Unique RSS encoder setpoints were calculated for each rocket based on the difference between the initial pusher position for the rocket with an end cap and a normal rocket. Because of the additional length of the rockets with end caps, the ROCKET FAIL TO STAGE at the shear station alarm was disabled to allow for automatic processing. The modification also included adding a selection to the rocket line initialize screen, RLI, for rockets with end caps. ANCDF, PBCDF, and UMCDF are all incorporating this change into their rocket processing software.

B-18 TOCDF completed all rocket processing on November 17, 2003. TOCDF rocket campaigns included processing of M55 rockets and M56 rocket warheads. The M56 warheads originated from M55 rockets that had the rocket motors removed. The warheads consisted of a fuse, a burster, and an agent-filled, aluminum warhead packed in a propellant charge can. The GB campaign began on 22 Aug 1996 and was completed 14 Aug 2001. All of the GB M56 warheads and the majority of the GB M55 rockets were processed on Line B, controlled by PLC ICS-CONR-104A. Line A, controlled by PLC ICS-CONR-101A, was used only from 22 Aug 1996 through 3 April 1999. All VX-filled M55 rockets were processed on Line B. Therefore, ICS-CONR-101A PLC code does not necessarily reflect the final rocket-processing configuration at TOCDF. Descriptions in the FAWB reflect the TOCDF Line B configuration.

B-19 Under ECP TEMP2556RSM R1, TOCDF created the new operator control screen, ECR, which displays both ECRs, ECR doors, dampers, differential pressure, agent concentration, and E-stop status. Certain devices can be controlled from the screen as well. The ECR screen was added to provide the operators with a consolidated view of certain key parameters in the ECRs for use during operations, maintenance or upset conditions. Previously, CON operators had to access different screens in order to monitor system status and operate the equipment. ANCDF has added the screen. PBCDF and UMCDF are reviewing the change and are expected to implement a similar change.

APPENDIX C

Alarm and Interlock Matrices

Appendix C contains *alert tables,* alarm and system response tables, and alarm*/alert* and interlock (A&I) matrices for the RHS. *Alert tables are site-specific, applying to ANCDF and TOCDF only. When PBCDF and UMCDF alarm/alert studies are completed and implemented*[1]*, the results will be included in this appendix. All of the A&I* matrices are programmatic, applying to *all four sites, except for AQS matrices*. *Site-specific matrices were prepared to clarify the current AQS configuration at each of the sites.*

The *alert tables and* alarm and system response tables list the instrument tag number, a description of the instrument, and the system response to the alarm*/alert*. *Alert tables were created for ANCDF and TOCDF to implement recommendations from studies that reclassified many of the alarms to be alerts. The alert classification was created to distinguish between conditions that require immediate operation response (alarms) and those that don't (alerts). Alerts are indicated differently on the CON Advisor screens and are not accompanied by audible annunciation in the CON. For ANCDF and TOCDF, one table lists the alerts for both lines, and another table lists the alarms.*

A&I matrices depict in a consolidated format the software and hardware alarms and interlocks for the equipment and instrumentation in a specific system. For the RHS, programmatic A&I matrices are presented in 6 different matrices, each associated with a portion of the rocket line. The 6 matrices are:

(1) Rocket Input Feed Assembly - Line A
(2) Rocket Input Feed Assembly - Line B
(3) Rocket Drain Station - Line A
(4) Rocket Drain Station - Line B
(5) Rocket Shear Station - Line A
(6) Rocket Shear Station - Line B

Site-specific A&I matrices were generated for the AQS components because there are too many differences between some of the sites to present the interlocks clearly. Therefore, there are three AQS matrices, one for ANCDF, one for TOCDF, and one for PBCDF and UMCDF, which are similar.

[1] *PBCDF and UMCDF alarm/alert studies have been completed but not yet implemented. PBCDF prepared ECP PBSF1808STE to implement it, but the ECP was returned pending resolution of a few minor issues. UMCDF is preparing an ECP to implement the alarm/alert study results. When the ECPs are approved, the alarm and alert tables for PBCDF and UMCDF will be included in this appendix.*

Specific guidelines were developed during development of utility system FAWBs for ANCDF and UMCDF that are followed in the programmatic FAWBs. *Fourteen* specific guidelines have been established that define the format and content of entries in the A&I matrices:

1. Analog signals from transmitters (e.g., LITs) are not listed; the alarms are indicated separately.
2. All software prealarms and alarms (e.g., LAHs) that are indicated in the CON are listed. Setpoints and actions are shown where applicable.
3. Equipment and instrument status indication signals (e.g., open/close, on/off) are not listed unless they initiate action.
4. Alarms generated from GFE package units that report to the PLC are listed. If not already available and listed, the GFE internal alarms and actions will be added to the matrix when available from the site systems contractor and "*SC to provide detail"* will be entered into the "remarks" column.
5. For field switch generated alarms, the switch tag is listed, not the alarm tag. For example, a low-low pressure alarm (PALL) generated by the field switch, 13-PSLL-008, is listed as 13-PSLL-008 rather than 13-PALL-008. The purpose for this listing is to distinguish between field switch generated hardwired alarms and alarms generated in the software based on the analog output from a transmitter.
6. Instruments that initiate actions are listed in a vertical column sorted by prefix, loop number, instrument ID, then suffix. For example, for 99-TSH-100A, the prefix is 99, the loop number is 100, the instrument ID is TSH, and the suffix is A). Actions are listed in column across the top of the matrix and include prealarms and alarms.
7. Setpoints are listed for all instruments where applicable. Instrument ranges for analog transmitters are shown in Appendix F. Unless otherwise noted, tank level setpoints are shown from the level transmitter tap.
8. Only hand switches (push buttons) that cause system shutdowns are listed; other software and hardwired hand switches are not listed.
9. Local alarms are not listed.
10. Matrices are grouped by subsystem as applicable within each FAWB. For example, separate matrices are provided in the RHS FAWB for the rocket input feed assembly, the rocket drain station of the RSM, and the rocket shear station of the RSM.
11. Alarms associated with automatic actions are classified as *"alarms"* and alarms without automatic actions are classified as *"prealarms."*
12. Instruments listed in the matrix that are RCRA reportable are designated as such by entering *"RCRA"* in the Remarks column.

13. Clarifications are provided when necessary in the remarks column of the A&I matrices, or in the system and/or operator response column in alarm and system response tables.

14. Device malfunction alarms are not shown unless they initiate automatic actions such as equipment switchovers (e.g., to a standby pump), system shutdowns, or a stop feed signal.

ANCDF ALERT TABLE

RSM SYSTEM - ROCKET LINES A & B

P&IDs: AN-1-D-501, -502, -551, -552, -553, -554; PLCs: ICS-CONR-101A/104A; INTERLOCK I-2

LN	LINE A TAG NUMBER	LINE B TAG NUMBER	DESCRIPTION	SYSTEM RESPONSE	REMARKS	ALERT BIT B001:XX/XX
1	02-XA-158	02-XA-258	RHS-FEED-101 [102] RKT INPUT ASSEMBLY MALFUNCTION	INTERLOCK SYSTEM DEVICES	MALFUNCTION FOR 02-HS-155 [255].	460/11
2	02-ZS-160	02-ZS-260	MMS-CNVM-101 [102] MUNITION FAIL TO ARRIVE	INTERLOCK METERING MACHINE		420/02
3	02-XA-167	02-XA-267	MMS-CNVM-101 [102] RKT INPUT CONVEYOR 1 MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 02-HS-164 [264].	462/11
4	02-ZS-170	02-ZS-270	RHS-FEED-101 [102] REJECT TABLE FULL	INTERLOCK METERING MACHINE IN REVERSE		420/00
5	02-ZS-170	02-ZS-270	RHS-FEED-101 [102] REJECT ROCKET FAIL TO ARRIVE	INTERLOCK METERING MACHINE		420/04
6	02-ZX-504	02-ZX-503	RHS-FEED-101 [102] INDEX CLUTCH MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 02-HS-501 [502].	461/11
7	04-ZS-143	04-ZS-243	MMS-CNVM-103 [104] INPUT CONVEYOR 2 ROCKET FAIL TO ARRIVE	STOP & PLACE DEVICE IN MANUAL		420/10
8	42-1105	42-2105	RHS-RSM-101 [102] REAR DRAIN PUNCH MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		664/11
9	42-1106	42-2106	RHS-RSM-101 [102] FRONT DRAIN PUNCH MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		665/11
10	42-1107	42-2107	RHS-RSM-101 [102] VENT PUNCH MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		666/11
11	42-1108	42-2108	RHS-RSM-101 [102] LIFT TABLE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		667/11
12	42-1109	42-2109	RHS-RSM-101 [102] ROTATOR CYLINDER MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		668/11
13	42-1202	42-2202	RHS-RSM-101 [102] INDEX PUSHER MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		682/11
14	42-1203	42-2203	RHS-RSM-101 [102] INDEX STOP MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		681/11
15	42-1205	42-2205	RHS-RSM-101 [102] SHEAR CYLINDER MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		684/11
16	42-1PLS5	42-2PLS5	ROCKET FAIL TO STAGE FUZE	STOP & PLACE DEVICES IN MANUAL	TAG NUMBER FROM CODE. ALERT REQUIRES INPUT FROM PLS5A AND PLS5B. PLS5B IS NOT SHOWN ON AN-1-D-552 [554] (SEE FAWB NOTE B-12).	620/06
17	42-1PLS6	42-2PLS6	RSM ROCKET SHEAR STATION MUNITION FAIL TO ARRIVE	STOP & PLACE DEVICES IN MANUAL		620/04
18	51-LAH-051	51-LAH-057	ACS-TANK-103 [104] AQS TANK LEVEL HIGH ALARM	ALERT ONLY	SETPOINT: 20 INCHES.	650/06
19	51-LAL-051	51-LAL-057	ACS-TANK-103 [104] INSUFFICIENT AGENT DRAINED ALARM	OPERATOR SELECTS REPEAT DRAIN OR BYPASS	SETPOINT: 13.6 INCHES.	650/00
20	51-LIT-51	51-LIT-57	ACS-TANK-103 [104] DID NOT EMPTY	RDS SEQUENCER WILL STALL		620/12
21	51-PAH-051	51-PAH-057	ACS-TANK-103 [104] VACUUM LOW ALARM	ALERT ONLY	SETPOINT 8.5 PSIA. ACTIVE WHEN AIR VALVE TO PUMP OPEN, TANK VAC. VALVE OPEN, TANK DRAIN VALVE CLOSED, & STRAINER DRAIN & VAC. VALVES CLOSED. 20 SEC. DELAY.	650/04
22	51-XV-51	51-XV-57	ACS-TANK-103 [104] AQS TANK VACUUM VALVE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		677/11
23	51-XV-52	51-XV-58	ACS-FILT-103 [104] AQS STRAINER 3-WAY VALVE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		672/11
24	51-XV-53	51-XV-59	ACS-TANK-103 [104] AQS TANK DRAIN VALVE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		676/11
25	51-XV-69/64	51-XV-80/71	ACS-FILT-103 [104] AQS STRAINER DRAIN VALVE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	ALERT ACTIVATED ON MALFUNCTION OF DRAIN VLV ON STRAINER SELECTED BY OPERATOR.	674/11
26	RDSTAINIT	RDSTBINIT	RDS INITIALIZE FAILURE/MALFUNCTION	STOP SEQUENCE		701/11
27	RFAPOCKET	RFBPOCKET	UNKNOWN ROCKET IN THE POCKET	INTERLOCK FEED ASSEMBLY DEVICES	AS INDICATED BY 02-ZX-169 [269].	420/16
28	RHFDINITA	RHFDINITB	RHS FEED INITIALIZE FAILURE/MALFUNCTION	STOP SEQUENCE		491/11
29	RHSYSPRKA	RHSYSPRKB	RHS-RSM-101 [102] ROCKET SYSTEM PARK MALFUNCTION	STOP SEQUENCE		700/11
30	RKTPMA	RKTPMB	ROCKET LINE PREVENTIVE MAINTENANCE DUE	ALERT ONLY.	ALERT AFTER COUNTER EXCEEDS 200 ROCKETS	421/00
31	RSSTAINIT	RSSTBINIT	RSM INITIALIZE FAILURE/MALFUNCTION	STOP SEQUENCE		702/11

ANCDF ALARM AND SYSTEM RESPONSE

RSM SYSTEM - ROCKET LINES A & B

P&IDs: AN-1-D-501, -502, -551, -552, -553, -554; PLCs: ICS-CONR-101A/104A; INTERLOCK I-2

LN	LINE A TAG NUMBER	LINE B TAG NUMBER	DESCRIPTION	SYSTEM RESPONSE	REMARKS	ALARM BIT B001:XX/XX
1	03-HDV-101	SEE BELOW	ECR-BLDR-101 ECR A MAN DOOR MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-164. ALARM IN ICS-CONR-105.	2060/11
2	03-HDV-102	SEE BELOW	ECR-BLDR-102 ECR A MAN DOOR MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-165. ALARM IN ICS-CONR-105.	2063/11
3	SEE ABOVE	03-HDV-103	ECR-BLDR-103 ECR B MAN DOOR MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-264. ALARM IN ICS-CONR-105.	2066/11
4	SEE ABOVE	03-HDV-104	ECR-BLDR-104 ECR B MAN DOOR MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-265. ALARM IN ICS-CONR-105.	2068/11
5	03-HDV-111	03-HDV-112	MMS-GATE-101 [102] ECR ROCKET BLAST GATE MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-135B [223B].	660/11
6	03-XA-160	03-XA-260	RHS-RSM-101 [102] RSM SYSTEM EMERGENCY STOP ALARM	ALARM & INTERLOCK MACHINE DEVICES		620/00
7	03-XA-161	03-XA-261	RHS-RSM-101 [102] DFS FEED CHUTE FIRE	ALARM, STOP PROCESSING	LINE A ALARM IS DICO FROM ICS-CONR-112.	LN A: 221/04 LN B: 621/04
8	03-FAL-175	03-FAL-275	DFS WASHDOWN FLOW ECR A [ECR B]	ALARM ONLY	SETPOINT 2 GPM.	650/02
9	03-FSL-240	03-FSL-242	SHEAR BLADE WATER LOW FLOW ALARM	ALARM, INHIBIT SHEAR	ACTIVE WHEN PROCESS WATER SELECTED	620/10
10	03-FSL-241	03-FSL-243	SHEAR BLADE DECON LOW FLOW ALARM	ALARM, INHIBIT SHEAR	ACTIVE WHEN DECON SELECTED	621/06
11	04-XA-148	04-XA-248	MMS-CNVM-103 [104] RKT INPUT CONVEYOR 2 MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 04-HS-145 [245].	463/11
12	04-XY-163	04-XY-263	MMS-CNVM-103 [104] RKT INPUT CONVEYOR 2 ROCKET STOP MALF.	ALARM & INTERLOCK SYSTEM DEVICES		464/11
13	04-XS-198	04-XS-298	MMS-CNVM-103 [104] RSM ROPE SW ROCKET INPUT CONVEYOR 2	ALARM & INTERLOCK DEVICE		420/06
14	42-1102	42-2102	RHS-RSM-101 [102] STOP/VENT CLAMP CYLINDER MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		662/11
15	42-1104	42-2104	RHS-RSM-101 [102] BOTTOM CLAMP CYLINDER MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		663/11
16	42-1110	42-2110	RHS-RSM-101 [102] POSITIVE STOP MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		669/11
17	42-1PLS3	42-2PLS3	RDS INPUT CONVEYOR MUNITION FAIL TO ARRIVE	ALARM, STOP & PLACE DEVICE IN MANUAL		620/02
18	71-XS-007A	71-XS-008A	RKT LINE A [LINE B] SHIFT SUPERVISOR CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/00
19	71-XS-027A	71-XS-028A	RKT LINE A [LINE B] LEAD OPERATOR CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/02
20	71-XS-087A	71-XS-088A	RKT LINE A [LINE B] DEMIL OPERATOR CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/04
21	71-XS-107A	71-XS-108A	RKT LINE A [LINE B] DEMIL OPERATOR CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/06
22	71-XS-127A	71-XS-128A	RKT LINE A [LINE B] DEMIL/FURNACE OPER CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/10
23	71-XS-147B	71-XS-148B	RKT LINE A [LINE B] DEMIL OPERATOR CONTROL CONSOLE 109 E-STOP	ALARM & INTERLOCK SYSTEM DEVICES	NOT SHOWN ON AN P&IDs (SEE FAWB NOTE B-13)	623/12
24	PDARLNA	PDARLNB	AQS LINE A [LINE B] VALUES NOT READ BY PDAR	ALARM ONLY		620/16

PBCDF AND UMCDF ALARM AND SYSTEM RESPONSE (SEE NOTE 1)

RSM SYSTEM - ROCKET LINE A

PBCDF P&IDs: PB-1-D-501, -551, -552; PLC: ICS-CONR-101A; INTERLOCK I-2
UMCDF P&IDs: UM-1-D-501, -551, -552; PLC: ICS-CONR-101A; INTERLOCK I-2

LN	TAG NUMBER	DESCRIPTION	SYSTEM RESPONSE	REMARKS	ALARM BIT B001:XX/XX
1	02-XA-158	RHS-FEED-101 RKT INPUT ASSEMBLY MALFUNCTION	ALARM & INTERLOCK SYSTEM DEVICES	MALFUNCTION FOR 02-HS-155.	460/11
2	02-ZS-160	MMS-CNVM-101 MUNITION FAIL TO ARRIVE ALARM	ALARM, INTERLOCK METERING MACHINE		420/02
3	02-XA-167	MMS-CNVM-101 RKT INPUT CONVEYOR 1 MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 02-HS-164.	462/11
4	02-ZS-170	RHS-FEED-101 REJECT TABLE FULL ALARM	ALARM, INTERLOCK METERING MACHINE REVERSE		420/00
5	02-ZS-170	RHS-FEED-101 REJECT ROCKET FAIL TO ARRIVE ALARM	ALARM, INTERLOCK METERING MACHINE		420/04
6	02-ZX-504	RHS-FEED-101 INDEX CLUTCH MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 02-HS-501.	461/11
7	03-HDV-111	MMS-GATE-101 ECR ROCKET BLAST GATE MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-135B.	660/11
8	03-XA-160	RHS-RSM-101 RSM SYSTEM EMERGENCY STOP ALARM	ALARM & INTERLOCK MACHINE DEVICES		620/00
9	03-XA-161	RHS-RSM-101 DFS FEED CHUTE FIRE	ALARM, STOP PROCESSING	ALARM IN ICS-CONR-112.	224/00
10	03-FSL-240	SHEAR BLADE WATER LOW FLOW ALARM	ALARM, INHIBIT SHEAR	ACTIVE WHEN PROCESS WATER SELECTED	620/10
11	03-FSL-241	SHEAR BLADE DECON LOW FLOW ALARM	ALARM, INHIBIT SHEAR	ACTIVE WHEN DECON SELECTED	621/06
12	04-ZS-143	RHS-FEED-101 INPUT CONVEYOR 2 ROCKET FAIL TO ARRIVE ALARM	ALARM, STOP & PLACE DEVICE IN MANUAL		420/10
13	04-XA-148	MMS-CNVM-103 RKT INPUT CONVEYOR 2 MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 04-HS-145.	463/11
14	04-XY-163	MMS-CNVM-103 RKT INPUT CONVEYOR 2 ROCKET STOP MALFUNCTION	ALARM & INTERLOCK SYSTEM DEVICES		464/11
15	04-XA-198	MMS-CNVM-103 RSM ROPE SWITCH ROCKET INPUT CONVEYOR 2 ALARM	ALARM & INTERLOCK DEVICE		420/06
16	42-1102	RHS-RSM-101 STOP/VENT CLAMPS MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		662/11
17	42-1104	RHS-RSM-101 BOTTOM CLAMP MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		663/11
18	42-1105	RHS-RSM-101 REAR DRAIN PUNCH MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		664/11
19	42-1106	RHS-RSM-101 FRONT DRAIN PUNCH MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		665/11
20	42-1107	RHS-RSM-101 VENT PUNCH MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		666/11
21	42-1108	RHS-RSM-101 LIFT TABLE MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		667/11
22	42-1109	RHS-RSM-101 ROTATOR MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		668/11
23	42-1110	RHS-RSM-101 POSITIVE STOP MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		669/11
24	42-1202	RHS-RSM-101 INDEX PUSHER MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		682/11
25	42-1203	RHS-RSM-101 INDEX STOP MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		681/11
26	42-1205	RHS-RSM-101 SHEAR MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		684/11
27	42-1PLS3	RDS INPUT CONVEYOR MUNITION FAIL TO ARRIVE ALARM	ALARM, STOP & PLACE DEVICES IN MANUAL		620/02
28	42-1PLS5	ROCKET FAIL TO STAGE FUZE ALARM	ALARM, STOP & PLACE DEVICES IN MANUAL	TAG NUMBER FROM CODE. ALARM REQUIRES INPUT FROM PLS5A AND PLS5B. PLS5B IS NOT SHOWN ON PB/UM-1-D-552 (SEE FAWB NOTE B-12).	620/06
29	42-1PLS6	RSM FEED CONVEYOR MUNITION FAIL TO ARRIVE ALARM	ALARM, STOP & PLACE DEVICES IN MANUAL		620/04
30	51-LAH-051	ACS-TANK-103 AQS TANK LEVEL HIGH ALARM	ALARM ONLY	SETPOINT: 20 INCHES.	650/06
31	51-LAL-051	ACS-TANK-103 INSUFFICIENT AGENT DRAINED ALARM	ALARM, OPERATOR SELECTS REPEAT DRAIN OR BYPASS	PB SP: 15.1 IN. UM SP: 12.0 IN.	650/00
32	51-LIT-51	ACS-TANK-103 DID NOT EMPTY	RDS SEQUENCER WILL STALL		620/12
33	51-PAH-051	ACS-TANK-103 VACUUM LOW ALARM	ALARM ONLY	PB SP: 8.5 PSIA. UM SP: 8.0 PSIA. ACTIVE WHEN AIR VALVE TO PUMP OPEN, TANK VAC. VALVE OPEN, TANK DRAIN VALVE CLOSED, & STRAINER DRAIN & VAC. VALVES CLOSED. 20 SEC. DELAY. NOT SHOWN ON PB/UM P&IDs.	650/04
34	71-XS-007A	RKT LINE A SHIFT SUPERVISOR CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/00
35	71-XS-027A	RKT LINE A LEAD OPERATOR CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/02
36	71-XS-087A	RKT LINE A DEMIL OPERATOR CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/04
37	71-XS-107A	RKT LINE A DEMIL OPERATOR CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES	UM ONLY.	623/06
38	71-XS-127A	RKT LINE A DEMIL/FURNACE OPER CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/10
39	71-XS-147B	RKT LINE A DEMIL OPERATOR CONTROL CONSOLE 109 E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/12

PBCDF AND UMCDF ALARM AND SYSTEM RESPONSE (SEE NOTE 1)

RSM SYSTEM - ROCKET LINE A

PBCDF P&IDs: PB-1-D-501, -551, -552; PLC: ICS-CONR-101A; INTERLOCK I-2
UMCDF P&IDs: UM-1-D-501, -551, -552; PLC: ICS-CONR-101A; INTERLOCK I-2

LN	TAG NUMBER	DESCRIPTION	SYSTEM RESPONSE	REMARKS	ALARM BIT B001:XX/XX
40	PDARLNA	AQS LINE A VALUES NOT READ BY PDAR	ALARM ONLY.		620/16
41	RDSTAINIT	RDS INITIALIZE MALFUNCTION ALARM	ALARM, STOP SEQUENCE		701/11
42	RFAPOCKET	UNKNOWN ROCKET IN THE POCKET ALARM	ALARM & INTERLOCK FEED ASSEMBLY DEVICES		420/16
43	RHFDINITA	RHS FEED INITIALIZE MALFUNCTION ALARM	ALARM, STOP SEQUENCE		491/11
44	RHSYSPRKA	RHS-RSM-101 ROCKET SYSTEM PARK MALFUNCTION	ALARM, STOP SEQUENCE		700/11
45	RKTPMA	ROCKET LINE PREVENTIVE MAINTENANCE DUE	ALARM ONLY.	ALARM AFTER COUNTER EXCEEDS 100 ROCKETS AT PB AND 200 ROCKETS AT UM.	421/00
46	RSSTAINIT	RSM INITIALIZE MALFUNCTION ALARM	ALARM, STOP SEQUENCE		702/11

NOTE:
1. PBCDF and UMCDF alarm/alert studies have been completed but not yet implemented. PBCDF prepared ECP PBSF1808STE to implement it, but the ECP was returned pending resolution of a few minor issues. UMCDF is preparing an ECP to implement the alarm/alert study results. When the ECPs are approved, PBCDF and UMCDF alarm tables will be modified and alert tables will be included in this appendix.

PBCDF AND UMCDF ALARM AND SYSTEM RESPONSE (SEE NOTE 1)

RSM SYSTEM - ROCKET LINE B

PBCDF P&IDs: PB-1-D-502, -553, -554; PLC: ICS-CONR-104A; INTERLOCK I-2
UMCDF P&IDs: UM-1-D-502, -553, -554; PLC: ICS-CONR-104A; INTERLOCK I-2

LN	TAG NUMBER	DESCRIPTION	SYSTEM RESPONSE	REMARKS	ALARM BIT B001:XX/XX
1	02-XA-258	RHS-FEED-102 RKT INPUT ASSEMBLY MALFUNCTION	ALARM & INTERLOCK SYSTEM DEVICES	MALFUNCTION FOR 02-HS-255.	460/11
2	02-ZS-260	MMS-CNVM-102 MUNITION FAIL TO ARRIVE ALARM	ALARM, INTERLOCK METERING MACHINE		420/02
3	02-XA-267	MMS-CNVM-102 RKT INPUT CONVEYOR 1 MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 02-HS-264.	462/11
4	02-ZS-270	RHS-FEED-102 REJECT TABLE FULL ALARM	ALARM, INTERLOCK METERING MACHINE REVERSE		420/00
5	02-ZS-270	RHS-FEED-102 REJECT ROCKET FAIL TO ARRIVE ALARM	ALARM, INTERLOCK METERING MACHINE		420/04
6	02-ZX-503	RHS-FEED-102 INDEX CLUTCH MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 02-HS-502.	461/11
7	03-HDV-112	MMS-GATE-102 ECR ROCKET BLAST GATE MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-223B.	660/11
8	03-FSL-242	SHEAR BLADE WATER LOW FLOW ALARM	ALARM, INHIBIT SHEAR	ACTIVE WHEN PROCESS WATER SELECTED	620/10
9	03-FSL-243	SHEAR BLADE DECON LOW FLOW ALARM	ALARM, INHIBIT SHEAR	ACTIVE WHEN DECON SELECTED	621/06
10	03-XA-260	RHS-RSM-102 RSM SYSTEM EMERGENCY STOP ALARM	ALARM & INTERLOCK MACHINE DEVICES		620/00
11	03-XA-261	RHS-RSM-102 DFS FEED CHUTE FIRE	ALARM, STOP PROCESSING		621/04
12	04-ZS-243	RHS-FEED-102 INPUT CONVEYOR 2 ROCKET FAIL TO ARRIVE ALARM	ALARM, STOP & PLACE DEVICE IN MANUAL		420/10
13	04-XA-248	MMS-CNVM-104 RKT INPUT CONVEYOR 2 MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 04-HS-245.	463/11
14	04-XY-263	MMS-CNVM-104 RKT INPUT CONVEYOR 2 ROCKET STOP MALFUNCTION	ALARM & INTERLOCK SYSTEM DEVICES		464/11
15	04-XS-298	MMS-CNVM-104 RSM ROPE SW ROCKET INPUT CONVEYOR 2 ALARM	ALARM & INTERLOCK DEVICE		420/06
16	42-2102	RHS-RSM-102 STOP/VENT CLAMPS MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		662/11
17	42-2104	RHS-RSM-102 BOTTOM CLAMP MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		663/11
18	42-2105	RHS-RSM-102 REAR DRAIN PUNCH MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		664/11
19	42-2106	RHS-RSM-102 FRONT DRAIN PUNCH MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		665/11
20	42-2107	RHS-RSM-102 VENT PUNCH MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		666/11
21	42-2108	RHS-RSM-102 LIFT TABLE MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		667/11
22	42-2109	RHS-RSM-102 ROTATOR MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		668/11
23	42-2110	RHS-RSM-102 POSITIVE STOP MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		669/11
24	42-2202	RHS-RSM-102 INDEX PUSHER MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		682/11
25	42-2203	RHS-RSM-102 INDEX STOP MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		681/11
26	42-2205	RHS-RSM-102 SHEAR MALFUNCTION	ALARM, STOP & PLACE DEVICE IN MANUAL		684/11
27	42-2PLS3	RDS INPUT CONVEYOR MUNITION FAIL TO ARRIVE ALARM	ALARM, STOP & PLACE DEVICES IN MANUAL		620/02
28	42-2PLS5	ROCKET FAIL TO STAGE FUZE ALARM	ALARM, STOP & PLACE DEVICES IN MANUAL	TAG NUMBER FROM CODE. ALARM REQUIRES INPUT FROM PLS5A AND PLS5B. PLS5B IS NOT SHOWN ON PB/UM-1-D-554 (SEE FAWB NOTE B-12).	620/06
29	42-2PLS6	RSM FEED CONVEYOR MUNITION FAIL TO ARRIVE ALARM	ALARM, STOP & PLACE DEVICES IN MANUAL		620/04
30	51-LAH-057	ACS-TANK-104 AQS TANK LEVEL HIGH ALARM	ALARM ONLY	SETPOINT: 20 INCHES.	650/06
31	51-LAL-057	ACS-TANK-104 INSUFFICIENT AGENT DRAINED ALARM	ALARM, OPERATOR SELECTS REPEAT DRAIN OR BYPASS	PB SP: 15.1 IN. UM SP: 12.0 IN.	650/00
32	51-LIT-57	ACS-TANK-104 DID NOT EMPTY	RDS SEQUENCER WILL STALL		620/12
32	51-PAH-057	ACS-TANK-104 VACUUM LOW ALARM	ALARM ONLY	PB SP: 8.5 PSIA. UM SP: 8.0 PSIA. ACTIVE WHEN AIR VALVE TO PUMP OPEN, TANK VAC. VALVE OPEN, TANK DRAIN VALVE CLOSED, & STRAINER DRAIN & VAC. VALVES CLOSED. 20 SEC. DELAY. NOT SHOWN ON PB/UM P&IDs.	650/04
33	71-XS-008A	RKT LINE B SHIFT SUPERVISOR CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/00
34	71-XS-028A	RKT LINE B LEAD OPERATOR CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/02
35	71-XS-088A	RKT LINE B DEMIL OPERATOR CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/04
36	71-XS-108A	RKT LINE B DEMIL OPERATOR CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES	UM ONLY.	623/06
37	71-XS-128A	RKT LINE B DEMIL/FURNACE OPER CONTROL CONSOLE E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/10

PBCDF AND UMCDF ALARM AND SYSTEM RESPONSE (SEE NOTE 1)

RSM SYSTEM - ROCKET LINE B

PBCDF P&IDs: PB-1-D-502, -553, -554; PLC: ICS-CONR-104A; INTERLOCK I-2
UMCDF P&IDs: UM-1-D-502, -553, -554; PLC: ICS-CONR-104A; INTERLOCK I-2

LN	TAG NUMBER	DESCRIPTION	SYSTEM RESPONSE	REMARKS	ALARM BIT B001:XX/XX
38	71-XS-148B	RKT LINE A DEMIL OPERATOR CONTROL CONSOLE 109 E-STOP ALARM	ALARM & INTERLOCK SYSTEM DEVICES		623/12
39	PDARLNB	AQS LINE B VALUES NOT READ BY PDAR	ALARM ONLY.		620/16
40	RDSTBINIT	RDS INITIALIZE MALFUNCTION ALARM	ALARM, STOP SEQUENCE		701/11
41	RFBPOCKET	UNKNOWN ROCKET IN THE POCKET ALARM	ALARM & INTERLOCK FEED ASSEMBLY DEVICES		420/16
42	RHFDINITB	RHS FEED INITIALIZE MALFUNCTION ALARM	ALARM, STOP SEQUENCE		491/11
43	RHSYSPRKB	RHS-RSM-102 ROCKET SYSTEM PARK MALFUNCTION	ALARM, STOP SEQUENCE		700/11
44	RKTPMB	ROCKET LINE PREVENTIVE MAINTENANCE DUE	ALARM ONLY.	ALARM AFTER COUNTER EXCEEDS 100 ROCKETS AT PB AND 200 ROCKETS AT UM.	421/00
45	RSSTBINIT	RSM INITIALIZE MALFUNCTION ALARM	ALARM, STOP SEQUENCE		702/11

NOTE:
1. PBCDF and UMCDF alarm/alert studies have been completed but not yet implemented. PBCDF prepared ECP PBSF1808STE to implement it, but the ECP was returned pending resolution of a few minor issues. UMCDF is preparing an ECP to implement the alarm/alert study results. When the ECPs are approved, PBCDF and UMCDF alarm tables will be modified and alert tables will be included in this appendix.

TOCDF ALERT TABLE

RSM SYSTEM - ROCKET LINES A & B

P&IDs: TE-1-D-501, -502, -551, -552, -553, -554; PLCs: ICS-CONR-101A/104A; INTERLOCK I-2

LN	LINE A TAG NUMBER	LINE B TAG NUMBER	DESCRIPTION	SYSTEM RESPONSE	REMARKS	ALERT BIT B001:XX/XX
1	02-XA-158	02-XA-258	RHS-FEED-101 [102] RKT INPUT ASSEMBLY MALFUNCTION	INTERLOCK SYSTEM DEVICES	MALFUNCTION FOR 02-HS-155 [255].	460/11
2	02-XA-167	02-XA-267	MMS-CNVM-101 [102] RKT INPUT CONVEYOR 1 MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 02-HS-164 [264].	462/11
3	02-ZS-170	02-ZS-270	RHS-FEED-101 [102] REJECT ROCKET FAIL TO ARRIVE	INTERLOCK METERING MACHINE		420/04
4	02-ZX-504	02-ZX-503	RHS-FEED-101 [102] INDEX CLUTCH MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 02-HS-501 [502].	461/11
5	03-HDV-101	SEE BELOW	ECR-BLDR-101 ECR A MAN DOOR MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-164. ALERT IN ICS-CONR-105.	2060/11
6	03-HDV-102	SEE BELOW	ECR-BLDR-102 ECR A MAN DOOR MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-165. ALERT IN ICS-CONR-105.	2063/11
7	SEE ABOVE	03-HDV-103	ECR-BLDR-103 ECR B MAN DOOR MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-264. ALERT IN ICS-CONR-105.	2066/11
8	SEE ABOVE	03-HDV-104	ECR-BLDR-104 ECR B MAN DOOR MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-265. ALERT IN ICS-CONR-105.	2068/11
9	03-HDV-111	03-HDV-112	MMS-GATE-101 [102] ECR ROCKET BLAST GATE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 03-HS-135B [223B].	660/11
10	04-XA-148	04-XA-248	MMS-CNVM-103 [104] RKT INPUT CONVEYOR 2 MALFUNCTION	STOP & PLACE DEVICE IN MANUAL	MALFUNCTION FOR 04-HS-145 [245].	463/11
11	04-XY-163	04-XY-263	MMS-CNVM-103 [104] RKT INPUT CONVEYOR 2 ROCKET STOP MALF.	INTERLOCK SYSTEM DEVICES		464/11
12	42-1102	42-2102	RHS-RSM-101 [102] STOP/VENT CLAMP CYLINDER MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		662/11
13	42-1104	42-2104	RHS-RSM-101 [102] BOTTOM CLAMP CYLINDER MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		663/11
14	42-1105	42-2105	RHS-RSM-101 [102] REAR DRAIN PUNCH MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		664/11
15	42-1106	42-2106	RHS-RSM-101 [102] FRONT DRAIN PUNCH MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		665/11
16	42-1107	42-2107	RHS-RSM-101 [102] VENT PUNCH MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		666/11
17	42-1108	42-2108	RHS-RSM-101 [102] LIFT TABLE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		667/11
18	42-1109	42-2109	RHS-RSM-101 [102] ROTATOR CYLINDER MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		668/11
19	42-1110	42-2110	RHS-RSM-101 [102] POSITIVE STOP MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		669/11
20	42-1203	42-2203	RHS-RSM-101 [102] INDEX STOP MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		681/11
21	42-1205	42-2205	RHS-RSM-101 [102] SHEAR CYLINDER MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		684/11
22	51-LAH-051	51-LAH-057	ACS-TANK-103 [104] AQS TANK LEVEL HIGH	ALERT ONLY	SETPOINT: 20 INCHES (NOTE 1).	650/06
23	51-LAL-051	51-LAL-057	ACS-TANK-103 [104] INSUFFICIENT AGENT DRAINED	OPERATOR SELECTS REPEAT DRAIN OR BYPASS	SETPOINT: 16.2 INCHES (NOTE 1).	650/00
24	51-PAH-051	51-PAH-057	ACS-TANK-103 [104] VACUUM LOW	ALERT ONLY	SETPOINT 6.0 PSIA (NOTE 1). ACTIVE WHEN AIR VALVE TO PUMP OPEN, TANK VAC. VALVE OPEN, TANK DRAIN VALVE CLOSED, & STRAINER DRAIN & VAC. VALVES CLOSED. 20 SEC. DELAY.	650/04
25	51-XV-51	51-XV-57	ACS-TANK-103 [104] AQS TANK VACUUM VALVE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		675/11
26	51-XV-52	51-XV-58	ACS-FILT-103 [104] AQS STRAINER DRAIN VALVE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		672/11
27	51-XV-53	51-XV-59	ACS-TANK-103 [104] AQS TANK DRAIN VALVE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		673/11
28	51-XV-54	51-XV-64	ACS-TANK-103 [104] AQS STRAINER VACUUM VALVE MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		674/11
29	PDARLNA	PDARLNB	AQS LINE A [LINE B] VALUES NOT READ BY PDAR	ALERT ONLY		620/16
30	RDSTAINIT	RDSTBINIT	RDS INITIALIZE FAILURE/MALFUNCTION	STOP SEQUENCE		701/11
31	RFAPOCKET	RFBPOCKET	UNKNOWN ROCKET IN THE POCKET	INTERLOCK FEED ASSEMBLY DEVICES	AS INDICATED BY 02-ZX-169 [269].	420/16
32	RHFDINITA	RHFDINITB	RHS FEED INITIALIZE FAILURE/MALFUNCTION	STOP SEQUENCE		491/11
33	RHSYSPRKA	RHSYSPRKB	RHS-RSM-101 [102] ROCKET SYSTEM PARK MALFUNCTION	STOP SEQUENCE		700/11
34	RKTPMA	RKTPMB	ROCKET LINE PREVENTIVE MAINTENANCE DUE	ALERT ONLY.	ALERT AFTER COUNTER EXCEEDS 400 ROCKETS (NOTE 1).	379/11
35	RSSTAINIT	RSSTBINIT	RSM INITIALIZE FAILURE/MALFUNCTION	STOP SEQUENCE		702/11

NOTE 1: SETPOINTS ARE FOR LINE B, WHICH WAS USED FOR THE MAJORITY OF ROCKET PROCESSING AT TOCDF (SEE FAWB NOTE B-18).

TOCDF ALARM AND SYSTEM RESPONSE

RSM SYSTEM - ROCKET LINES A & B

P&IDs: TE-1-D-501, -502, -551, -552, -553, -554; PLCs: ICS-CONR-101A/104A; INTERLOCK I-2

LN	LINE A TAG NUMBER	LINE B TAG NUMBER	DESCRIPTION	SYSTEM RESPONSE	REMARKS	ALARM BIT B001:XX/XX
1	02-ZS-160	02-ZS-260	MMS-CNVM-101 [102] MUNITION FAIL TO ARRIVE	INTERLOCK METERING MACHINE		420/02
2	02-ZS-170	02-ZS-270	RHS-FEED-101 [102] REJECT TABLE FULL	INTERLOCK METERING MACHINE IN REVERSE		420/00
3	03-FSL-157	03-FSL-181	SHEAR BLADE WATER LOW FLOW ALARM	ALARM, INHIBIT SHEAR		620/10
4	03-XS-160	03-XS-260	RHS-RSM-101 [102] RSM SYSTEM EMERGENCY STOP ALARM	ALARM & INTERLOCK MACHINE DEVICES		620/00
5	03-XS-161	03-XS-261	RHS-RSM-101 [102] DFS FEED CHUTE FIRE	ALARM, STOP PROCESSING		621/04
6	04-ZS-143	04-ZS-243	MMS-CNVM-103 [104] INPUT CONVEYOR 2 ROCKET FAIL TO ARRIVE	STOP & PLACE DEVICE IN MANUAL		420/10
7	04-XS-198	04-XS-298	MMS-CNVM-103 [104] RSM ROPE SW ROCKET INPUT CONVEYOR 2	ALARM & INTERLOCK DEVICE		420/06
8	42-1202	42-2202	RHS-RSM-101 [102] INDEX PUSHER MALFUNCTION	STOP & PLACE DEVICE IN MANUAL		682/11
9	42-1PLS3	42-2PLS3	RDS INPUT CONVEYOR MUNITION FAIL TO ARRIVE	ALARM, STOP & PLACE DEVICE IN MANUAL		620/02
10	42-1PLS5	42-2PLS5	ROCKET FAIL TO STAGE FUZE	STOP & PLACE DEVICES IN MANUAL	TAG NUMBER FROM CODE. ALARM REQUIRES INPUT FROM PLS5A AND PLS5B. (SEE FAWB NOTE B-12).	620/06
11	42-1PLS6	42-2PLS6	RSM ROCKET SHEAR STATION MUNITION FAIL TO ARRIVE	STOP & PLACE DEVICES IN MANUAL		620/04
12	51-LIT-51	51-LIT-57	ACS-TANK-103 [104] DID NOT EMPTY (TANK NOT DRAINING)	RDS SEQUENCER WILL STALL		620/12
13	71-XS-007A	71-XS-008A	RKT LINE A [LINE B] SHIFT SUPERVISOR CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/00
14	71-XS-027A	71-XS-028A	RKT LINE A [LINE B] LEAD OPERATOR CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/02
15	71-XS-087A	71-XS-088A	RKT LINE A [LINE B] DEMIL OPERATOR CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/04
16	71-XS-107A	71-XS-108A	RKT LINE A [LINE B] DEMIL OPERATOR CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/06
17	71-XS-127A	71-XS-128A	RKT LINE A [LINE B] DEMIL/FURNACE OPER CONTROL CONSOLE E-STOP	ALARM & INTERLOCK SYSTEM DEVICES		623/10

PROGRAMMATIC
ALARM/ALERT AND INTERLOCK MATRIX
ANCDF, PBCDF, TOCDF, AND UMCDF

ROCKET INPUT FEED ASSEMBLY - LINE A

LOCATION: MDB 2ND FLOOR UPA AND ECV
AREAS: 02, 04
PLC: ICS-CONR-101A
P&IDs: AN/PB/TE/UM-1-D-501
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO WRITTEN IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED. DUE TO THE LISTED CONDITION
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO ALL SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

			1	2	3	4	5	6	7	8	9	
			02-HS-155 RHS-FEED-101 ROCKET INPUT ASSEMBLY DRIVE MTR FORWARD									
				02-HS-155 RHS-FEED-101 ROCKET INPUT ASSEMBLY DRIVE MTR REVERSE								
					02-HS-501 RHS-FEED-101 ROCKET INPUT ASSEMBLY CLUTCH							
						02-HS-164 MMS-CNVM-101 ROCKET INPUT CONVEYOR 1 FORWARD						
							02-HS-164 MMS-CNVM-101 ROCKET INPUT CONVEYOR 1 REVERSE					
								04-HS-145 MMS-CNVM-103 ROCKET INPUT CONVEYOR 2 FORWARD				
									04-HS-145 MMS-CNVM-103 ROCKET INPUT CONVEYOR 2 REVERSE			
										04-HS-163B MMS-CNVM-103 ROCKET INPUT CONVEYOR 2 STOP EXT		
											04-HS-163B MMS-CNVM-103 ROCKET INPUT CONVEYOR 2 STOP RET	
LN	TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	09	REMARKS
1	03-XS-110	PMD SYSTEM ECR A E-STOP ACTIVATED (DICO FROM ICS-CONR-101B)	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	I-LOCK AT UM ONLY.
1	02-ZS-154	RHS-FEED-101 NOT AT HOME POSITION	2									
2	02-ZS-170	RHS-FEED-101 REJECT TABLE FULL ALARM		X								ALERT AT AN. SEE FOOTNOTE A.
3	02-ZX-504	RHS-FEED-101 INDEX CLUTCH MALFUNCTION	X	X		X						MALF FOR 02-HS-501. ALERT AT AN/TE. SEE FOOTNOTE A.
4	03-ZS-123A	MMS-GATE-101 ACCESS BLAST GATE OPEN								X		
5	04-ZS-143	ROCKET INPUT CONVEYOR 2 ROCKET PRESENT								X		
6	04-XS-198A/B	MMS-CNVM-103 ROPE SWITCH ACTIVATED				X	X	X	X	X	X	
7	71-XS-007A	SHIFT SUPRV CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
8	71-XS-027A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
9	71-XS-087A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
10	71-XS-107A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/TE/UM ONLY
11	71-XS-127A	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
12	71-XS-147B	CONSOLE 109 E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	TE DOES NOT HAVE 71-XS-147B, BUT DOES HAVE ANOTHER CONSOLE E-STOP (SEE FAWB NOTE B-13). AN HAS 71-XS-147B, BUT IT IS NOT SHOWN ON AN-1-D-501.
13	02-ZS-160	MMS-CNVM-101 MUNITION FAIL TO ARRIVE ALARM	X	X	X	X						ALERT AT AN. SEE FOOTNOTE A.
14	02-ZS-170	RHS-FEED-101 REJECT ROCKET FAIL TO ARRIVE ALARM	X	X	X	X						ALERT AT AN/TE. SEE FOOTNOTE A.
15	RFAPOCKET	UNKNOWN ROCKET IN THE POCKET ALARM	X	X	X	X						ALERT AT AN/TE. SEE FOOTNOTE A.
16	RHS-RSM-101	REJECT ROCKET IN THE POCKET	1									
17	RHS-RSM-101	RDS INPUT CONVEYOR RUNNING FORWARD								X		
18	04-ZS-166	MMS-GATE-101 THROUGH GATE SENSOR BLOCKED								**Y**		I-LOCK AT AN ONLY.

FOOTNOTE
A. Alerts are not identified for PB/UM because the ECPs implementing the PB & UM alarm/alert study results have not yet been approved. After the ECPs are approved, the matrix will be revised to indentify alerts at PB & UM.

PROGRAMMATIC
ALARM/ALERT AND INTERLOCK MATRIX
ANCDF, PBCDF, TOCDF, AND UMCDF

ROCKET INPUT FEED ASSEMBLY - LINE B

LOCATION: MDB 2ND FLOOR UPA AND ECV
AREAS: 02, 04
PLC: ICS-CONR-104A
P&IDs: AN/PB/TE/UM-1-D-502
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO WRITTEN IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED. DUE TO THE LISTED CONDITION
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO ALL SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	02-HS-255 RHS-FEED-102 ROCKET INPUT ASSEMBLY DRIVE MTR FORWARD
2	02-HS-255 RHS-FEED-102 ROCKET INPUT ASSEMBLY DRIVE MTR REVERSE
3	02-HS-502 RHS-FEED-102 ROCKET INPUT ASSEMBLY CLUTCH
4	02-HS-264 MMS-CNVM-102 ROCKET INPUT CONVEYOR 1 FORWARD
5	02-HS-264 MMS-CNVM-102 ROCKET INPUT CONVEYOR 1 REVERSE
6	04-HS-245 MMS-CNVM-104 ROCKET INPUT CONVEYOR 2 FORWARD
7	04-HS-245 MMS-CNVM-104 ROCKET INPUT CONVEYOR 2 REVERSE
8	04-HS-263B MMS-CNVM-104 ROCKET INPUT CONVEYOR 2 STOP EXT
9	04-HS-263B MMS-CNVM-104 ROCKET INPUT CONVEYOR 2 STOP RET

LN	TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	09	REMARKS
1	02-ZS-253	RHS-FEED-102 NOT AT HOME POSITION	2									
2	02-ZS-270	RHS-FEED-102 REJECT TABLE FULL ALARM		X								ALERT AT AN. SEE FOOTNOTE B.
3	02-ZX-503	RHS-FEED-102 INDEX CLUTCH MALFUNCTION	X	**Y**		X						MALFUNCTION FOR 02-HS-502. ALERT AT AN/TE. SEE FOOTNOTES A & B.
4	03-ZS-223A	MMS-GATE-102 ACCESS BLAST GATE OPEN								X		
5	04-ZS-243	ROCKET INPUT CONVEYOR 2 ROCKET PRESENT								X		
6	04-XS-298A/B	MMS-CNVM-104 ROPE SWITCH ACTIVATED				X	X	X	X	X	X	
7	71-XS-008A	SHIFT SUPRV CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
8	71-XS-028A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
9	71-XS-088A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
10	71-XS-108A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/TE/UM ONLY
11	71-XS-128A	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
12	71-XS-148B	CONSOLE 109 E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	TE DOES NOT HAVE 71-XS-148B, BUT DOES HAVE ANOTHER CONSOLE E-STOP (SEE FAWB NOTE B-13). AN HAS 71-XS-148B, BUT IT IS NOT SHOWN ON AN-1-D-502.
13	02-ZS-260	MMS-CNVM-102 MUNITION FAIL TO ARRIVE ALARM	X	**Y**	X	X						ALERT AT AN. SEE FOOTNOTES A & B.
14	02-ZS-270	RHS-FEED-102 REJECT ROCKET FAIL TO ARRIVE ALARM	X	**Y**	X	X						ALERT AT AN/TE. SEE FOOTNOTES A & B.
15	RFBPOCKET	UNKNOWN ROCKET IN THE POCKET ALARM	X	**Y**	**Y**	X						ALERT AT AN/TE. SEE FOOTNOTES A & B.
16	RHS-RSM-102	REJECT ROCKET IN THE POCKET	1									
17	RHS-RSM-102	RDS INPUT CONVEYOR RUNNING FORWARD								X		

FOOTNOTES
A. For columns marked with **Y**, the interlocks were not in the referenced version of the PBCDF control code. The code is being modified to add the interlocks.
B. Alerts are not identified for PB/UM because the ECPs implementing the PB & UM alarm/alert study results have not yet been approved. After the ECPs are approved, the matrix will be revised to indentify alerts at PB & UM.

PROGRAMMATIC
ALARM/ALERT AND INTERLOCK MATRIX
ANCDF, PBCDF, TOCDF, AND UMCDF

ROCKET DRAIN STATION WITHOUT AQS - LINE A

LOCATION: MDB 2ND FLOOR ECR A
AREAS: 03
PLC: ICS-CONR-101A
P&IDs: AN/PB/TE/UM-1-D-501, -551, -552
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED DUE TO THE LISTED CONDITION.
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO ALL SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	03-HS-135B MMS-GATE-101 MUNITION ACCESS BLAST GATE OPEN
2	03-HS-135B MMS-GATE-101 MUNITION ACCESS BLAST GATE CLOSE
3	42-1101 RHS-RSM-101 RDS INPUT CONVEYOR FORWARD
4	42-1101 RHS-RSM-101 RDS INPUT CONVEYOR REVERSE
5	42-1102 RHS-RSM-101 RDS STOP\VENT CLAMP EXTEND
6	42-1102 RHS-RSM-101 RDS STOP\VENT CLAMP RETRACT
7	42-1104 RHS-RSM-101 RDS BOTTOM CLAMP EXTEND
8	42-1104 RHS-RSM-101 RDS BOTTOM CLAMP RETRACT
9	42-1105 RHS-RSM-101 RDS REAR DRAIN PUNCH EXTEND
10	42-1105 RHS-RSM-101 RDS REAR DRAIN PUNCH RETRACT
11	42-1106 RHS-RSM-101 RDS FRONT DRAIN PUNCH EXTEND
12	42-1106 RHS-RSM-101 RDS FRONT DRAIN PUNCH RETRACT
13	42-1107 RHS-RSM-101 RDS VENT DRAIN PUNCH EXTEND
14	42-1107 RHS-RSM-101 RDS VENT DRAIN PUNCH RETRACT
15	42-1108 RHS-RSM-101 RDS LIFT TABLE EXTEND
16	42-1108 RHS-RSM-101 RDS LIFT TABLE RETRACT
17	42-1109 RHS-RSM-101 RDS ROTATOR EXTEND
18	42-1109 RHS-RSM-101 RDS ROTATOR RETRACT
19	42-1110 RHS-RSM-101 RDS POSITIVE STOP EXTEND (LOWER)
20	42-1110 RHS-RSM-101 RDS POSITIVE STOP RETRACT (RAISE)

LN	TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	REMARKS
1	03-XS-110	PMD SYSTEM ECR A E-STOP ACTIVATED (DICO FROM ICS-CONR-101B)	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	I-LOCK AT UM ONLY.
2	03-ZS-123B	MMS-GATE-101 ACCESS BLAST GATE NOT CLOSED									X		X		X								I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
3	03-ZS-131B	MMS-GATE-103 DFS FEED CHUTE NOT CLOSED	X								X		X		X								I-LOCK FOR ALL DEVICES EXCEPT MMS-GATE-101 CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
4	03-ZS-138B	PHS-GATE-101 ACCESS BLAST GATE NOT CLOSED									**Y**		**Y**		**Y**								AN/TE/UM ONLY. PB DOES NOT HAVE PHS GATES. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
5	03-ZS-153B	PHS-GATE-103 ACCESS BLAST GATE NOT CLOSED									**Y**		**Y**		**Y**								AN/TE/UM ONLY. PB DOES NOT HAVE PHS GATES. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
6	03-XS-160	RHS-RSM-101 ECR SYSTEM E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7	04-HS-163B	MMS-CNVM-103 ROCKET STOP NOT LOWERING		X																			LATCHING I-LOCK. MMS-GATE-101 CANNOT BEGIN CLOSING UNLESS 03-ZS-123A, MMS-GATE-101 OPEN, IS ACTIVE, 04-ZS-143, MUNITION PRESENT ON MMS-CNVM-103, IS ACTIVE, & RDS INPUT CONVEYOR IS RUNNING FORWARD.
8	04-XS-198A/B	MMS-CNVM-103 ROPE SWITCH ACTIVATED	X	X																			
9	42-1102A	RDS STOP CLAMP NOT EXTENDED									2		2		2								
10	42-1102B	RDS STOP CLAMP NOT RETRACTED															2						
11	42-1103A	RDS VENT CLAMP NOT EXTENDED									2		2		2								
12	42-1103B	RDS VENT CLAMP NOT RETRACTED															2						
13	42-1104A	RDS BOTTOM CLAMP NOT EXTENDED									2		2		2								
14	42-1104B	RDS BOTTOM CLAMP NOT RETRACTED															2						
15	42-1105B	RDS REAR DRAIN PUNCH NOT RETRACTED															2						
16	42-1106B	RDS FRONT DRAIN PUNCH NOT RETRACTED															2						
17	42-1107B	RDS VENT PUNCH NOT RETRACTED															2						
18	42-1110A	RDS POSITIVE STOP NOT EXTENDED			3**Y**																		I-LOCK AT AN/PB/UM ONLY.
19	42-1PLS-3	ROCKET PRESENT AT PUNCH & DRAIN STATION			1						1		1		1		1						
20	42-1PLS-4	RSM PUSHER NOT IN HOME POSITION			2																		
21	71-XS-007A	SHIFT SUPERVISOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
22	71-ZS-027A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
23	71-ZS-087A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
24	71-XS-107A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/TE/UM ONLY
25	71-XS-127A	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
26	71-XS-147B	CONSOLE 109 E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/PB/UM ONLY. TE DOES NOT HAVE 71-XS-147B, BUT DOES HAVE ANOTHER CONSOLE E-STOP (SEE FAWB NOTE B-13). AN HAS 71-XS-147B, BUT IT IS NOT SHOWN ON AN-1-D-501.
27	DICI-104A	LINE A ECR EXPLOSION DETECTED (DICO TO ICS-CONR-104A)	X		X	**Y**	X	**Y**	X	**Y**	X	**Y**	X	**Y**	X	**Y**	X	**Y**	X	**Y**	X	X	FOR DEVICES WITH **Y**, I-LOCK AT AN/PB/UM ONLY. SEE FAWB NOTE B-14.
28	DICI-105	PLANT AIR NOT AVAILABLE									X		X										
29	DICI-105	ECR MAN DOORS NOT CLOSED & LOCKED									X		X		X								I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
30	DICI-110	ECR AIR PRESSURE NOT NORMAL	X																				
31	XFRTOPLS3	ROCKET ON THE WAY TO THE DRAIN STATION		X																			
32	XFRTOPLS5	ROCKET ON THE WAY TO RSM																			X		
33	XTGZS150	MMS-GATE-101 THROUGH-GATE SENSOR BLOCKED AND GATE OPEN		X																			MMS-GATE-101 IS I-LOCKED FROM CLOSING IF 03-ZS-123A, MMS-GATE-101 OPEN, IS ACTIVE AND 04-ZS-166 (04-ZS-150 AT TE), MMS-GATE-101 THROUGH-GATE SENSOR, IS BLOCKED.

PROGRAMMATIC
ALARM/ALERT AND INTERLOCK MATRIX
ANCDF, PBCDF, TOCDF, AND UMCDF

ROCKET DRAIN STATION - LINE B

LOCATION: MDB 2ND FLOOR ECR B
AREAS: 03
PLC: ICS-CONR-104A
P&IDs: AN/PB/TE/UM-1-D-502, -553, -554
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO WRITTEN IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED. DUE TO THE LISTED CONDITION
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO ALL SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1 03-HS-223B MMS-GATE-102 MUNITION ACCESS BLAST GATE OPEN
2 03-HS-223B MMS-GATE-102 MUNITION ACCESS BLAST GATE CLOSE
3 42-2101 RHS-RSM-102 RDS INPUT CONVEYOR FORWARD
4 42-2101 RHS-RSM-102 RDS INPUT CONVEYOR REVERSE
5 42-2102 RHS-RSM-102 RDS STOP\VENT CLAMP EXTEND
6 42-2102 RHS-RSM-102 RDS STOP\VENT CLAMP RETRACT
7 42-2104 RHS-RSM-102 RDS BOTTOM CLAMP EXTEND
8 42-2104 RHS-RSM-102 RDS BOTTOM CLAMP RETRACT
9 42-2105 RHS-RSM-102 RDS REAR DRAIN PUNCH EXTEND
10 42-2105 RHS-RSM-102 RDS REAR DRAIN PUNCH RETRACT
11 42-2106 RHS-RSM-102 RDS FRONT DRAIN PUNCH EXTEND
12 42-2106 RHS-RSM-102 RDS FRONT DRAIN PUNCH RETRACT
13 42-2107 RHS-RSM-102 RDS VENT DRAIN PUNCH EXTEND
14 42-2107 RHS-RSM-102 RDS VENT DRAIN PUNCH RETRACT
15 42-2108 RHS-RSM-102 RDS LIFT TABLE EXTEND
16 42-2108 RHS-RSM-102 RDS LIFT TABLE RETRACT
17 42-2109 RHS-RSM-102 RDS ROTATOR EXTEND
18 42-2109 RHS-RSM-102 RDS ROTATOR RETRACT
19 42-2110 RHS-RSM-102 RDS POSITIVE STOP EXTEND (LOWER)
20 42-2110 RHS-RSM-102 RDS POSITIVE STOP RETRACT (RAISE)
21
22

LN	TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	REMARKS
1	03-XS-210	PMD SYSTEM ECR B E-STOP ACTIVATED (DICO FROM ICS-CONR-104B)	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	I-LOCK AT UM ONLY.
2	03-ZS-223B	MMS-GATE-102 ACCESS BLAST GATE NOT CLOSED									X		X		X								I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
3	03-ZS-231B	MMS-GATE-104 DFS FEED CHUTE NOT CLOSED	X								X		X		X								I-LOCK FOR ALL DEVICES EXCEPT MMS-GATE-101 CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
4	03-ZS-238B	PHS-GATE-102 ACCESS BLAST GATE NOT CLOSED									**Y**		X		X								AN/TE/UM ONLY. PB DOES NOT HAVE PHS GATES. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
5	03-ZS-253B	PHS-GATE-104 ACCESS BLAST GATE NOT CLOSED									**Y**		X		X								AN/TE/UM ONLY. PB DOES NOT HAVE PHS GATES. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
6	03-XS-260	RHS-RSM-102 ECR SYSTEM E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7	04-HS-263B	MMS-CNVM-104 ROCKET STOP NOT LOWERING		X																			LATCHING I-LOCK. MMS-GATE-102 CANNOT BEGIN CLOSING UNLESS 03-ZS-223A, MMS-GATE-102 OPEN, IS ACTIVE, 04-ZS-243, MUNITION PRESENT ON MMS-CNVM-104, IS ACTIVE, & RDS INPUT CONVEYOR IS RUNNING FORWARD.
8	04-XS-298A/B	MMS-CNVM-104 ROPE SWITCH ACTIVATED	X	X																			
9	42-2102A	RDS STOP CLAMP NOT EXTENDED									2		2		2								
10	42-2102B	RDS STOP CLAMP RETRACTED															2						
11	42-2103A	RDS VENT CLAMP NOT EXTENDED									2		2		2								
12	42-2103B	RDS VENT CLAMP RETRACTED															2						
13	42-2104A	RDS BOTTOM CLAMP NOT EXTENDED									2		2		2								
14	42-2104B	RDS BOTTOM CLAMP RETRACTED															2						
15	42-2105B	RDS REAR DRAIN PUNCH RETRACTED															2						
16	42-2106B	RDS FRONT DRAIN PUNCH RETRACTED															2						
17	42-2107B	RDS VENT PUNCH RETRACTED															2						
18	42-2110A	RDS POSITIVE STOP NOT EXTENDED			3**Y**																		I-LOCK AT AN/PB/UM ONLY.
19	42-2PLS-3	ROCKET PRESENT AT PUNCH & DRAIN STATION			1						1		1		1		1						
20	42-2PLS-4	RSM PUSHER NOT IN HOME POSITION			2																		
21	71-XS-008A	SHIFT SUPERVISOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
22	71-XS-028A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
23	71-XS-088A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
24	71-XS-108A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/TE/UM ONLY
25	71-XS-128A	DEMIL\FCE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
26	71-XS-148B	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/PB/UM ONLY. TE DOES NOT HAVE 71-XS-148B, BUT DOES HAVE ANOTHER CONSOLE E-STOP (SEE FAWB NOTE B-13). AN HAS 71-XS-148B, BUT IT IS NOT SHOWN ON AN-1-D-502.
27	DICI-101A	LINE B ECR EXPLOSION DETECTED (DICO TO ICS-CONR-101A)	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	SEE FAWB NOTE B-14.
28	DICI-105	PLANT AIR NOT AVAILABLE									X		X										
29	DICI-105	ECR MAN DOORS NOT CLOSED & LOCKED									X		X		X								I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
30	DICI-110	ECR AIR PRESSURE NOT NORMAL	X																				
31	XFR2PLS3	ROCKET ON THE WAY TO THE DRAIN STATION		X																			
32	XFR2PLS5	ROCKET ON THE WAY TO RSM																				X	
33	XTGZS250	MMS-GATE-102 THROUGH-GATE SENSOR BLOCKED AND GATE OPEN		X																			MMS-GATE-102 IS I-LOCKED FROM CLOSING IF 03-ZS-223A, MMS-GATE-102 OPEN, IS ACTIVE AND 04-ZS-266 (04-ZS-250 AT TE), MMS-GATE-102 THROUGH-GATE SENSOR, IS BLOCKED.

ANCDF

ALARM/ALERT AND INTERLOCK MATRIX

AGENT QUANTIFICATION SYSTEM - LINES A & B

LOCATION: MDB 2ND FLOOR ECR A [ECR B]
AREAS: 03
PLC: ICS-CONR-101A [ICS-CONR-104A]
P&IDs: AN-1-D-501, -502
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED DUE TO THE LISTED CONDITION.
4) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	ACS-PUMP-109 [ACS-PUMP-108] AGENT FEED PUMP START
2	51-XV-051 [51-XV-057] ACS-TANK-103 [ACS-TANK-104] VACUUM OPEN
3	51-XV-069/64 [51-XV-080/71] AQS FILTER DRAIN OPEN
4	51-XV-053 [51-XV-059] ACS-TANK-103 [ACS-TANK-104] DRAIN VALVE OPEN
5	51-XV-55A/B [51-XV-65A/B] AQS TANK LVL SENSOR ISOL. VLVS OPEN (FAWB NOTE B-8)
6	51-XV-070 [51-XV-081] ACS-TANK-103 [ACS-TANK-104] PURGE VALVE OPEN
7	51-XV-052 [51-XV-058] AQS FILTER 3-WAY VALVE OPEN

LN	LINE A TAG NUMBER	LINE B TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	REMARKS
1	03-XS-160	03-XS-260	RHS-RSM-101 [RHS-RSM-102] ECR SYSTEM E-STOP ACTIVATED	X	X	X	X	X	X		
2	51-PIT-051	51-PIT-057	ACS-TANK-103 [ACS-TANK-104] NOT PRESSURIZED			X					I-LOCK FOR 51-PIT-051 [-057] > 16.0 PSIA.
3	51-ZS-051A	51-ZS-057A	ACS-TANK-103 [ACS-TANK-104] VACUUM VALVE NOT OPEN					1	1		
4	51-XV-055A/B	51-XV-065A/B	ACS-TANK-103 [ACS-TANK-104] LEVEL SENSOR ISOL. VALVES OPEN		X				X		
5	51-XV-069A/064A	51-XV-080A/071A	SELECTED STRAINER DRAIN VALVE NOT OPEN					2	2		
6	51-XV-070	51-XV-081	ACS-TANK-103 [ACS-TANK-104] LEVEL SENSOR PURGE VALVE NOT CLOSED					X			SEE FAWB NOTE B-8.
7	71-XS-007A	71-XS-008A	SHIFT SUPERVISOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X		
8	71-XS-027A	71-XS-028A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X		
9	71-XS-087A	71-XS-088A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X		
10	71-XS-107A	71-XS-108A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X		
11	71-XS-127A	71-XS-128A	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X		
12	71-XS-147B	71-XS-148B	CONSOLE 109 E-STOP ACTIVATED	X	X	X	X	X	X		71-XS-147B [-148B] IS NOT SHOWN ON AN-1-D-501 [-502]. SEE FAWB NOTE B-13.
13	DICI-102	DICI-102	FIRE DETECTED IN MDB	X	X		X	X	X	X	
14	DICI-104A	DICI-101A	LINE A [LINE B] ECR EXPLOSION DETECTED (DICO TO ICS-CONR-104A [ICS-CONR-101A])	X	X	X	X	X	X		SEE FAWB NOTE B-14.
15	DICI-106	DICI-106	"OK TO PUMP AGENT" PERMISSIVE NOT MADE	X	X		X	X	X		

PBCDF and UMCDF

ALARM AND INTERLOCK MATRIX

AGENT QUANTIFICATION SYSTEM - LINES A & B

LOCATION: MDB 2ND FLOOR ECR A [ECR B]
AREAS: 03
PLC: ICS-CONR-101A [ICS-CONR-104A]
P&IDs: PB/UM-1-D-501, -502
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED DUE TO THE LISTED CONDITION.
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO BOTH SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	ACS-PUMP-109 [ACS-PUMP-108] AGENT FEED PUMP START
2	51-XV-051 [51-XV-057] ACS-TANK-103 [ACS-TANK-104] VACUUM OPEN
3	51-XV-069/64 [51-XV-080/71] AQS FILTER DRAIN OPEN
4	51-XV-053 [51-XV-059] ACS-TANK-103 [ACS-TANK-104] DRAIN VALVE OPEN
5	51-XV-065/068 [51-XV-072/073] AQS FILTER-VACUUM OPEN (ENDNOTE A)
6	51-XV-70A/B [51-XV-81A/B] AQS TANK LVL SENSOR ISOL. VLVS OPEN (FAWB NOTE B-8)
7	51-XV-107 [51-XV-117] ACS-TANK-103 PURGE VALVE OPEN (ENDNOTE A)
8	51-XV-052 [51-XV-058] AQS FILTER 3-WAY VALVE OPEN

LN	LINE A TAG NUMBER	LINE B TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	REMARKS
1	03-XS-110	03-XS-210	PMD SYSTEM ECR A [ECR B] E-STOP ACTIVATED (DICO FROM ICS-CONR-101B [ICS-CONR-104B])	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	I-LOCK AT UM ONLY.
2	03-XS-160	03-XS-260	RHS-RSM-101 [RHS-RSM-102] ECR SYSTEM E-STOP ACTIVATED	X	X	X	X	X	X	X	X	
3	51-PIT-051	51-PIT-057	ACS-TANK-103 [ACS-TANK-104] NOT PRESSURIZED			X		X				I-LOCK FOR 51-PIT-051 [-057] > 16.0 PSIA.
4	51-ZS-051A	51-ZS-057A	ACS-TANK-103 [ACS-TANK-104] VACUUM VALVE NOT OPEN						1	1		
5	51-ZS-051B	51-ZS-057B	ACS-TANK-103 [ACS-TANK-104] VACUUM VALVE NOT CLOSED					X				
6	51-ZS-053B	51-ZS-059B	ACS-TANK-103 [ACS-TANK-104] DRAIN VALVE NOT CLOSED					X				
7	51-XV-070A/B	51-XV-081A/B	ACS-TANK-103 [ACS-TANK-104] LEVEL SENSOR ISOL. VALVES OPEN		X					X		PB-1-D-501 , -502 HAVE NOT BEEN REVISED TO SHOW THESE VALVES. SEE FAWB NOTE B-8
8	51-XV-064A/069A	51-XV-064A/069A	SELECTED STRAINER DRAIN VALVE NOT OPEN						2	2		
9	51-XV-065A/068A	51-XV-072A/073A	SELECTED STRAINER VACUUM VALVE NOT OPEN						1	1		ENDNOTE A
10	51-XV-065B/068B	51-XV-072B/073B	SELECTED STRAINER VACUUM VALVE NOT CLOSED		X	X	X					ENDNOTE A
11	51-XV-107	51-XV-117	ACS-TANK-103 [ACS-TANK-104] LEVEL SENSOR PURGE VALVE NOT CLOSED						X			PB-1-D-501,-502 HAVE NOT BEEN REVISED TO SHOW THESE VALVES. SEE FAWB NOTE B-8
12	71-XS-007A	71-XS-008A	SHIFT SUPERVISOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	
13	71-XS-027A	71-XS-028A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	
14	71-XS-087A	71-XS-088A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	
15	71-XS-107A	71-XS-108A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	UM ONLY. PB DOES NOT HAVE 71-XS-107A [71-XS-108A].
16	71-XS-127A	71-XS-128A	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	
17	71-XS-147B	71-XS-148B	CONSOLE 109 E-STOP ACTIVATED	X	X	X	X	X	X	X	X	SEE FAWB NOTE B-13.
18	DICI-102	DICI-102	FIRE DETECTED IN MDB	X	X		X	X	X	X	X	
19	DICI-104A	DICI-101A	LINE A [LINE B] ECR EXPLOSION DETECTED (DICO TO ICS-CONR-104A [ICS-CONR-101A])	X	X	X	X	X	X	X	X	SEE FAWB NOTE B-14.
20	DICI-106	DICI-106	"OK TO PUMP AGENT" PERMISSIVE NOT MADE	X	X		X	X	X	X		

ENDNOTES
A: PBCDF AND UMCDF PLC LOGIC INCLUDE INTERLOCKS ASSOCIATED WITH THE STRAINER VACUUM VALVES. OPERATION OF THESE VALVES WAS REMOVED FROM THE ROCKET DRAIN SEQUENCE AT TOCDF AND ANCDF, AND WILL BE REMOVED AT PBCDF AND UMCDF (SEE FAWB NOTE B-16).

TOCDF

ALARM/ALERT AND INTERLOCK MATRIX

AGENT QUANTIFICATION SYSTEM - LINE B ONLY (SEE ENDNOTE A)

LOCATION: MDB 2ND FLOOR ECR B
AREAS: 03
PLC: ICS-CONR-104A
P&ID: TE-1-D-502
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED DUE TO THE LISTED CONDITION.
4) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	ACS-PUMP-108 AGENT FEED PUMP START
2	51-XV-057 ACS-TANK-104 VACUUM OPEN
3	51-XV-058 AQS FILTER DRAIN OPEN
4	51-XV-059 ACS-TANK-104 DRAIN VALVE OPEN
5	51-XV-064 AQS FILTER VACUUM OPEN (ENDNOTE B)
6	51-XV-65A/B AQS TANK LVL SENSOR ISOL. VLVS OPEN (FAWB NOTE B-8)
7	51-XV-065C ACS-TANK-104 PURGE VALVE OPEN

LN	LINE B TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	REMARKS
1	03-XS-260	RHS-RSM-102 ECR SYSTEM E-STOP ACTIVATED	X	X	X	X	X	X	X	
2	51-ZS-057A	ACS-TANK-104 VACUUM VALVE NOT OPEN						1	1	
3	51-ZS-058A	ACS-FLTR-104 FILTER DRAIN VALVE NOT OPEN						2	2	
4	51-ZS-064A	ACS-FLTR-104 VACUUM VALVE NOT OPEN						1	1	
5	51-XV-065A/B	ACS-TANK-104 LEVEL SENSOR ISOL. VALVES OPEN		X					X	
6	51-XV-065C	ACS-TANK-104 LEVEL SENSOR PURGE VALVE NOT CLOSED						X		SEE FAWB NOTE B-8.
7	71-XS-008A	SHIFT SUPERVISOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	
8	71-XS-028A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	
9	71-XS-088A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	
10	71-XS-108A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	
11	71-XS-128A	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	
12	DICI-102	FIRE DETECTED IN MDB	X	X		X	X	X	X	
13	DICI-101A	LINE B ECR EXPLOSION DETECTED (DICO TO ICS-CONR-101A)	X	X	X	X	X	X	X	SEE FAWB NOTE B-14.
14	DICI-106	"OK TO PUMP AGENT" PERMISSIVE NOT MADE	X	X		X	X	X	X	

ENDNOTES
A: TOCDF LINE A AQS LOGIC IS NOT INCLUDED BECAUSE IT WAS REMOVED FROM ECR A BY ECP TEMP2463ECR (SEE FAWB NOTE B-18).
B: STRAINER VACUUM VALVE OPERATION WAS REMOVED FROM THE ROCKET DRAIN SEQUENCE AT TOCDF BY ECP TEMP2469RSM (SEE FAWB NOTE B-16). VALVE INTERLOCKS REMAIN IN THE CODE.

PROGRAMMATIC
ALARM/ALERT AND INTERLOCK MATRIX
ANCDF, PBCDF, TOCDF, AND UMCDF

ROCKET SHEAR STATION - LINE A

LOCATION: MDB 2ND FLOOR ECR A
AREAS: 03
PLC: ICS-CONR-101A
P&IDs: AN/PB/TE/UM-1-D-501, -551, -552
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO WRITTEN IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED DUE TO THE LISTED CONDITION
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO ALL SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	42-1201 RHS-RSM-101 RSM FEED CONVEYOR FORWARD
2	42-1201 RHS-RSM-101 RSM FEED CONVEYOR REVERSE
3	42-1202 RHS-RSM-101 RSM PUSHER MOTOR FORWARD
4	42-1202 RHS-RSM-101 RSM PUSHER MOTOR REVERSE
5	42-1203 RHS-RSM-101 RSM INDEX STOP EXTEND
6	42-1203 RHS-RSM-101 RSM INDEX STOP RETRACT
7	42-1204 RHS-RSM-101 PROCESS WATER TO SHEAR BLADE OPEN
8	42-1205 RHS-RSM-101 RSM SHEAR BLADE EXTEND
9	42-1205 RHS-RSM-101 RSM SHEAR BLADE RETRACT

LN	TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	09	REMARKS
1	03-XS-110	PMD SYSTEM ECR A E-STOP ACTIVATED (DICO FROM ICS-CONR-101B)	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	I-LOCK AT UM ONLY.
2	03-ZS-123B	MMS-GATE-101 ACCESS BLAST GATE NOT CLOSED							1**Y**	X		I-LOCK AT TE ONLY FOR PROCESS WATER TO SHEAR BLADE. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
3	03-ZS-131B	MMS-GATE-103 DFS FEED CHUTE NOT CLOSED							1**Y**	X		I-LOCK AT TE ONLY FOR PROCESS WATER TO SHEAR BLADE. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
4	03-ZS-138B	PHS-GATE-101 ACCESS BLAST GATE NOT CLOSED							1**Y**	**Y**		I-LOCK AT TE ONLY FOR PROCESS WATER TO SHEAR BLADE. I-LOCK DOES NOT APPLY TO PB BECAUSE PB DOES NOT HAVE PHS GATES. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
5	03-ZS-153B	PHS-GATE-103 ACCESS BLAST GATE NOT CLOSED							1**Y**	**Y**		I-LOCK AT TE ONLY FOR PROCESS WATER TO SHEAR BLADE. I-LOCK DOES NOT APPLY TO PB BECAUSE PB DOES NOT HAVE PHS GATES. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
6	03-FSL-157	NO PROCESS WATER TO SHEAR BLADE								1**Y**		I-LOCK AT TE ONLY.
7	03-XS-160	RHS-RSM-101 ECR SYSTEM E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
8	03-FSL-240	NO PROCESS WATER TO SHEAR BLADE								1**Y**		AN/PB/UM ONLY.
9	03-FSL-241	NO DECON TO SHEAR BLADE								1**Y**		AN/PB/UM ONLY.
10	42-1202	RHS-RSM-101 RSM PUSHER MOTOR IN AUTO				2**Y**						I-LOCK AT AN/UM ONLY.
11	42-1202	INDEX PUSHER INTERFERE WITH SHEAR								X		
12	42-1204	RHS-RSM-101 PROCESS WATER TO SHEAR BLADE IN AUTO							2**Y**			I-LOCK AT TE ONLY.
13	42-1204	RHS-RSM-101 PROCESS WATER TO SHEAR BLADE NOT OPEN								**Y**		I-LOCK AT TE ONLY.
14	42-1205	SHEAR BLADE NOT IN AUTO								2		
15	42-1205B	RSM SHEAR CYLINDER NOT RETRACTED			**Y**							I-LOCK AT PB/UM ONLY
16	42-1PLS-3	ROCKET PRESENT AT PUNCH & DRAIN STATION	A1									
17	42-1PLS-4	RSM PUSHER NOT IN HOME POSITION	A2									
18	42-1PLS-5(A)	RSM ROCKET FULLY FORWARD				1**Y**						I-LOCK AT AN/UM ONLY. RSM SEQUENCER INPUT ROCKET FULLY FORWARD.
19	42-1PLS-5B	ROCKET NOT TOO FAR FORWARD	B1									SEE FAWB NOTE B-12
20	42-1PLS-6	ROCKET AT INDEX STOP	B2							2,3		
21	71-XS-007A	SHIFT SUPERVISOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
22	71-ZS-027A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
23	71-ZS-087A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
24	71-XS-107A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/TE/UM ONLY
25	71-XS-127A	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
26	71-XS-147B	CONSOLE 109 E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	TE DOES NOT HAVE 71-XS-147B, BUT DOES HAVE ANOTHER CONSOLE E-STOP (SEE FAWB NOTE B-13). AN HAS 71-XS-147B, BUT IT IS NOT SHOWN ON AN-1-D-501.
27	DICI-102	FIRE DETECTED IN MDB							X			
28	DICI-104A	LINE A ECR EXPLOSION DETECTED (DICO TO ICS-CONR-104A)	X	**Y**	X	**Y**	X	**Y**	X	X	**Y**	FOR DEVICES WITH **Y**, I-LOCK AT AN/PB/UM ONLY. SEE FAWB NOTE B-14.
29	DICI-104A	GELLED ROCKET LINE B SHEAR I-LOCK								**Y**		I-LOCK AT TE ONLY. SEE FAWB NOTE B-15.

PROGRAMMATIC
ALARM/ALERT AND INTERLOCK MATRIX
ANCDF, PBCDF, TOCDF, AND UMCDF

ROCKET SHEAR STATION - LINE A

LOCATION: MDB 2ND FLOOR ECR A
AREAS: 03
PLC: ICS-CONR-101A
P&IDs: AN/PB/TE/UM-1-D-501, -551, -552
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO WRITTEN IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED DUE TO THE LISTED CONDITION
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO ALL SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	42-1201 RHS-RSM-101 RSM FEED CONVEYOR FORWARD
2	42-1201 RHS-RSM-101 RSM FEED CONVEYOR REVERSE
3	42-1202 RHS-RSM-101 RSM PUSHER MOTOR FORWARD
4	42-1202 RHS-RSM-101 RSM PUSHER MOTOR REVERSE
5	42-1203 RHS-RSM-101 RSM INDEX STOP EXTEND
6	42-1203 RHS-RSM-101 RSM INDEX STOP RETRACT
7	42-1204 RHS-RSM-101 PROCESS WATER TO SHEAR BLADE OPEN
8	42-1205 RHS-RSM-101 RSM SHEAR BLADE EXTEND
9	42-1205 RHS-RSM-101 RSM SHEAR BLADE RETRACT

LN	TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	09	REMARKS
30	DICI-105	ECR MAN DOORS NOT CLOSED\LOCKED							1**Y**	X		I-LOCK AT TE ONLY FOR PROCESS WATER TO SHEAR BLADE. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
31	DICI-112	DFS NOT NORMAL							X			
32	DICI-112	HIGH ROCKET FEED RATE PREALARM							**Y**	**Y**		I-LOCK AT AN/PB/UM ONLY.
33	DICI-112	HIGH PROJO FEED RATE PREALARM							**Y**	**Y**		I-LOCK AT TE ONLY.
34	DICI-112	MMS-GATE-103 AND DFS-GATE-101 ARE CYCLING			**Y**					**Y**		AN/PB/UM ONLY. LATCHING I-LOCK FOR PUSHER MOTOR. UNLATCHES WHEN DICI IS NO LONGER ACTIVE AND 03-ZS-131B, MMS-GATE-103 CLOSED, IS ACTIVE.
35	DICI-112	DFS-GATE-101 NOT CLOSED								**Y**		I-LOCK AT AN/PB/UM ONLY.
36	RHSYSPRKA	LINE A SYSTEM PARK NOT IN PROGRESS								3		
37	X42AIPLS5	LINE A ROCKET FAIL TO STAGE AT SHEAR STATION	**Y**									I-LOCK AT AN/TE ONLY.
38	RDAAGTPRE	AGENT PREALARM FROM DFS			X							
39	APSHENCD	PUSHER ENCODER DIAGNOSTIC ALARM NOT ACTIVE			X							
40		PUSHER ENCODER POSITION LESS THAN SETPOINT			**Y**							I-LOCK AT TE ONLY. SP=280 IN.
41		RSM PUSHER CUT POSITION COUNT < 8								**Y**		I-LOCK AT PB/UM ONLY
42		RSM SEQUENCER IS AT STEP 10.2				3**Y**						I-LOCK AT UM ONLY.
43		SWITCH FOR PROCESSING ROCKETS WITH END CAPS IS ACTIVE				4**Y**						I-LOCK AT UM ONLY. SEE FAWB NOTE B-17.
44		LINE A MANUAL BURSTER DROP REQUIRED								X		CURRENTLY IN PB CODE BUT WILL BE DELETED.
45		ROCKET AGENT HEEL NOT > 0							X	X		

PROGRAMMATIC
ALARM/ALERT AND INTERLOCK MATRIX
ANCDF, PBCDF, TOCDF, AND UMCDF

ROCKET SHEAR STATION - LINE B

LOCATION: MDB 2ND FLOOR ECR B
AREAS: 03
PLC: ICS-CONR-104A
P&IDs: AN/PB/TE/UM-1-D-502, -553, -554
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO WRITTEN IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED DUE TO THE LISTED CONDITION
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO ALL SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	42-2201 RHS-RSM-102 RSM FEED CONVEYOR FORWARD
2	42-2201 RHS-RSM-102 RSM FEED CONVEYOR REVERSE
3	42-2202 RHS-RSM-102 RSM PUSHER MOTOR FORWARD
4	42-2202 RHS-RSM-102 RSM PUSHER MOTOR REVERSE
5	42-2203 RHS-RSM-102 RSM INDEX STOP EXTEND
6	42-2203 RHS-RSM-102 RSM INDEX STOP RETRACT
7	42-2204 RHS-RSM-102 PROCESS WATER TO SHEAR BLADE OPEN
8	42-2205 RHS-RSM-102 RSM SHEAR BLADE EXTEND
9	42-2205 RHS-RSM-102 RSM SHEAR BLADE RETRACT

LN	TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	09	REMARKS
1	03-FSL-181	NO PROCESS WATER TO SHEAR BLADE								1**Y**		I-LOCK AT TE ONLY.
2	03-XS-210	PMD SYSTEM ECR B E-STOP ACTIVATED (DICO FROM ICS-CONR-104B)	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	I-LOCK AT UM ONLY.
3	03-ZS-223B	MMS-GATE-102 ACCESS BLAST GATE NOT CLOSED								X		I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
4	03-ZS-231B	MMS-GATE-104 DFS FEED CHUTE NOT CLOSED								X		I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
5	03-ZS-238B	PHS-GATE-102 ACCESS BLAST GATE NOT CLOSED								**Y**		I-LOCK DOES NOT APPLY TO PB BECAUSE PB DOES NOT HAVE PHS GATES. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
6	03-FSL-242	NO PROCESS WATER TO SHEAR BLADE								1**Y**		AN/PB/UM ONLY.
7	03-FSL-243	NO DECON TO SHEAR BLADE								1**Y**		AN/PB/UM ONLY.
8	03-ZS-253B	PHS-GATE-104 ACCESS BLAST GATE NOT CLOSED								**Y**		I-LOCK DOES NOT APPLY TO PB BECAUSE PB DOES NOT HAVE PHS GATES. I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
9	03-XS-260	RHS-RSM-102 ECR SYSTEM E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
10	42-2202	RHS-RSM-102 RSM PUSHER MOTOR IN AUTO				2						
11	42-2202	INDEX PUSHER INTERFERE WITH SHEAR								X		
12	42-2204	RHS-RSM-102 PROCESS WATER TO SHEAR BLADE NOT OPEN								**Y**		I-LOCK AT TE ONLY.
13	42-2205	SHEAR BLADE NOT IN AUTO								2		
14	42-2205B	RSM SHEAR CYLINDER NOT RETRACTED			**Y**							I-LOCK AT PB/UM ONLY
15	42-2PLS-3	ROCKET PRESENT AT PUNCH & DRAIN STATION	A1									
16	42-2PLS-4	RSM PUSHER NOT IN HOME POSITION	A2									
17	42-2PLS-5(A)	RSM ROCKET FULLY FORWARD				1						RSM SEQUENCER INPUT ROCKET FULLY FORWARD.
18	42-2PLS-5B	ROCKET NOT TOO FAR FORWARD	B1									SEE FAWB NOTE B-12
19	42-2PLS-6	ROCKET AT INDEX STOP	B2							2,3		
20	71-XS-008A	SHIFT SUPERVISOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
21	71-XS-028A	LEAD OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
22	71-XS-088A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
23	71-XS-108A	DEMIL OPERATOR CONSOLE E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/TE/UM ONLY
24	71-XS-128A	DEMIL\FURNACE OPERATOR CONSOLE E-STOP ACTIVATED	X	X	X	X	X	X	X	X	X	
25	71-XS-148B	CONSOLE 109 E-STOP ACTIVATED	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	AN/PB/UM ONLY. TE DOES NOT HAVE 71-XS-148B, BUT DOES HAVE ANOTHER CONSOLE E-STOP (SEE FAWB NOTE B-13). AN HAS 71-XS-148B, BUT IT IS NOT SHOWN ON AN-1-D-502.
26	DICI-101A	LINE B ECR EXPLOSION DETECTED (DICO TO ICS-CONR-101A)	X	X	X	X	X	X	X	X	X	SEE FAWB NOTE B-14
27	DICI-102	FIRE DETECTED IN MDB							X			
28	DICI-105	ECR MAN DOORS NOT CLOSED\LOCKED								X		I-LOCK CAN BE BYPASSED BY SETTING LMCP PERMISSIVE AND OPERATING LOCALLY.
29	DICI-112	DFS NOT NORMAL							X			

PROGRAMMATIC
ALARM/ALERT AND INTERLOCK MATRIX
ANCDF, PBCDF, TOCDF, AND UMCDF

ROCKET SHEAR STATION - LINE B

LOCATION: MDB 2ND FLOOR ECR B
AREAS: 03
PLC: ICS-CONR-104A
P&IDs: AN/PB/TE/UM-1-D-502, -553, -554
INTERLOCK: I-2

NOTES:
1) LOGIC IN THIS MATRIX IS ALSO WRITTEN IN TEXT FORM IN APPENDIX D.
2) DEVICES ARE SHOWN ACROSS THE TOP, INTERLOCKING CONDITIONS ARE SHOWN DOWN THE SIDE.
3) SQUARES MARKED BY "X" INDICATE DEVICE IS INTERLOCKED DUE TO THE LISTED CONDITION
4) SQUARES MARKED BY "**Y**" INDICATE DEVICE INTERLOCK DOES NOT APPLY TO ALL SITES. DETAILS ARE IN THE REMARKS COLUMN.
5) SQUARES MARKED WITH A NUMBER INDICATE THE BRANCH LEVEL WITHIN THE INTERLOCK RUNG. LIKE NUMBERS ARE COMBINED TO MAKE A BRANCH.

1	42-2201 RHS-RSM-102 RSM FEED CONVEYOR FORWARD
2	42-2201 RHS-RSM-102 RSM FEED CONVEYOR REVERSE
3	42-2202 RHS-RSM-102 RSM PUSHER MOTOR FORWARD
4	42-2202 RHS-RSM-102 RSM PUSHER MOTOR REVERSE
5	42-2203 RHS-RSM-102 RSM INDEX STOP EXTEND
6	42-2203 RHS-RSM-102 RSM INDEX STOP RETRACT
7	42-2204 RHS-RSM-102 PROCESS WATER TO SHEAR BLADE OPEN
8	42-2205 RHS-RSM-102 RSM SHEAR BLADE EXTEND
9	42-2205 RHS-RSM-102 RSM SHEAR BLADE RETRACT

LN	TAG NUMBER	DESCRIPTION	01	02	03	04	05	06	07	08	09	REMARKS
30	DICI-112	HIGH ROCKET FEED RATE							X	X		
31	DICI-112	MMS-GATE-104 AND DFS-GATE-102 ARE CYCLING			**Y**					**Y**		AN/PB/UM ONLY. LATCHING I-LOCK FOR PUSHER MOTOR. UNLATCHES WHEN DICI IS NO LONGER ACTIVE AND 03-ZS-231B, MMS-GATE-104 CLOSED, IS ACTIVE.
32	DICI-112	DFS-GATE-102 NOT CLOSED								**Y**		I-LOCK AT AN/PB/UM ONLY.
33	RHSYSPRKB	LINE B SYSTEM PARK NOT IN PROGRESS								3		
34	X42A2PLS5	LINE B ROCKET FAIL TO STAGE AT SHEAR STATION	**Y**									I-LOCK AT AN/TE ONLY.
35	RDBAGTPRE	AGENT PREALARM FROM DFS			X					**Y**		RSM SHEAR BLADE EXTEND I-LOCK APPLIES TO TE ONLY AND DOES NOT DEPEND ON PUSHER CUT POSITION.
36	BPSHENCD	PUSHER ENCODER DIAGNOSTIC ALARM NOT ACTIVE			X							
37		PUSHER ENCODER POSITION LESS THAN SETPOINT.			**Y**							I-LOCK AT TE ONLY. SP=282 IN.
38		RSM PUSHER CUT POSITION COUNT < 8								**Y**		I-LOCK AT PB/UM ONLY
39		AGENT HEEL NOT RECEIVED AT DFS							**Y**			I-LOCK AT TE ONLY.
40		RSM SEQUENCER IS AT STEP 10.2				3						
41		SWITCH FOR PROCESSING ROCKETS WITH END CAPS IS ACTIVE				4						SEE FAWB NOTE B-17.
42		LINE B MANUAL BURSTER DROP REQUIRED								X		CURRENTLY IN PB CODE BUT WILL BE DELETED.
43		ROCKET AGENT HEEL NOT > 0							X	X		

APPENDIX D

PLC Automatic Control Sequences

Appendix D contains a summary of PLC automatic control sequences based on the current versions of the PLC code for each of the sites. This appendix also includes the sequencer tables for the sequencers that control operation of the RDS and the RSS of the RSMs.

The PLC automatic control sequence summaries were generated based on the control system rung ladders in the PLC code for the rocket handling system. The operator interface with the PLCs, the Advisor PC system, stores device information in a database that consists of *tags*, or database records used for storing all necessary information related to a device that is monitored or controlled by the Advisor PC system. **D6** tags are used for discrete devices that may be controlled from the Control Room. In this appendix, automatic control for all devices with **D6** tags are described, grouped by the Advisor PC screens on which they appear.

D.1 RHS PLC Automatic Control Sequences

The 5 screens described in this appendix for the RHS are listed in Table D.1. The screen designations for similar screens for rocket line B are shown in [].

Table D.1 RHS Advisor PC Screens

Advisor PC Screen Name	Process Screen Designation
Rocket Feed Line A [B]	RFA [RFB]
Rocket Demil Line A [B]	RDA [RDB]
Rocket Initialize Screen	RLI

For Advisor screens RFA, RFB, and RLI, RHS PLC automatic control sequences are similar *at* all four sites. *Therefore*, the control sequences are listed in a single table for *these* screens with annotations in the description to indicate the differences, if any, between the control for the device at the different sites. In addition, if control differences exist between the 2 similar rocket-processing lines at any of the sites, these differences are also noted.

Because *TOCDF has completed processing rockets, and the other sites are just beginning to process them, with modifications to the AQS and other demil logic and interlocks, there are some significant differences between the RHS PLC automatic control sequences for similar devices at TOCDF and the other sites. Therefore, for clarity, the TOCDF logic for demil devices is listed in one table, and the device logic for all other sites is listed in a separate table. In addition, because rocket line A at TOCDF was last used for rocket processing in*

April 1999, and will not be used in the future, PLC logic for RDA is outdated and is not listed. TOCDF rocket demil logic is listed for RDB only (see FAWB Note B-18).

At *all sites*, control for rocket line A is provided by ICS-CONR-101A and control for rocket line B is provided by ICS-CONR-104A. Control sequences for analogous devices for each of the two rocket lines are listed in Tables D.2 through *D.5*, with the device identifiers (e.g., tag numbers, component numbers) for line B enclosed in brackets []. The information in the tables is based on the *ANCDF and UMCDF control system rung ladders as of July 2003, and PBCDF and TOCDF control system rung ladders as of September 2003. Devices are listed sequentially by the driver word.*

Table D.2. RHS PLC Automatic Control Sequences
Advisor PC Screen: **RFA [RFB]**

Device:	**RHS-FEED-101 [RHS-FEED-102] Rocket Input Assembly Drive Motor**
Advisor PC Tag:	X02HS155 [X02HS255]
CONR:	C101A [C104A]
Driver Word:	0460 [0460]
Driver Type:	7
Auto Forward:	The auto forward relay will be active if both of the following conditions are satisfied: • RHS System is Running in Auto • Rocket input assembly drive motor auto reverse relay is not active (see below)

Auto Reverse:	The auto reverse relay will be active if either of the following conditions are satisfied:
	• RHS Feed System is Initializing
	• RHS System is Running in Auto and either of the following
	  • Auto reverse relay is active (seal-in) and 02-ZS-154 [02-ZS-253] (RHS-FEED-101 [RHS-FEED-102] home) is not made
	  • Reject or Unknown Rocket in the Pocket and 02-ZS-154 [02-ZS-253] (RHS-FEED-101 [RHS-FEED-102] home) is made

Forward I-Lock:	The following conditions must be satisfied to allow the device to operate forward: • RHS-FEED-101 [RHS-FEED-102] rocket input assembly clutch is not in malfunction • RHS-FEED-101 [RHS-FEED-102] conveyor #1 rocket fail to arrive alarm is not active • RHS-FEED-101 [RHS-FEED-102] reject rocket fail to arrive alarm is not active • RHS-FEED-101 [RHS-FEED-102] unknown rocket in the pocket alarm is not active • CON e-stop is not active • Reject rocket in the pocket relay is not active or 02-ZS-154 [02-ZS-253] (RHS-FEED-101 [RHS-FEED-102] home) is not made
Reverse I-Lock:	The following conditions must be satisfied to allow the device to operate reverse: • RHS-FEED-101 [RHS-FEED-102] rocket input assembly clutch is not in malfunction [a] • RHS-FEED-101 [RHS-FEED-102] conveyor #1 rocket fail to arrive alarm is not active [a] • RHS-FEED-101 [RHS-FEED-102] reject rocket fail to arrive alarm is not active [a]

Table D.2. RHS PLC Automatic Control Sequences
Advisor PC Screen: **RFA [RFB]**

- RHS-FEED-101 [RHS-FEED-102] unknown rocket in the pocket alarm is not active [a]
- CON e-stop is not active
- Reject table full alarm is not active

[a] *These interlocks were not in the referenced version of the PBCDF control code for Line B. The code is being modified to add the interlocks.*

Device: **RHS-FEED-101 [RHS-FEED-102] Rocket Input Assembly Clutch**

Advisor PC Tag: X02HS501 [X02HS502]

CONR: C101A [C104A]

Driver Word: 0461 [0461]

Driver Type: 1

Auto Start: The auto start relay will be active if both of the following conditions are satisfied:

- RHS Feed System is Initializing or System is Running in Auto
- Any of the following
  - Clutch initialize one-shot relay is active (see below)
  - Clutch energize one-shot relay is active (see below)
  - Auto start relay is active and 02-ZS-154 [02-ZS-253] (RHS-FEED-101 [RHS-FEED-102] home) is not made or 02-ZS-154 [02-ZS-253] (RHS-FEED-101 [RHS-FEED-102] home) has been made - dwell timer expired.

Start I-Lock: The following conditions must be satisfied to allow the device to operate:

- CON e-stop is not active
- RHS-FEED-101 [RHS-FEED-102] conveyor #1 rocket fail to arrive alarm is not active
- RHS-FEED-101 [RHS-FEED-102] unknown rocket in the pocket alarm is not active *(I-lock not in referenced code @ PB line B, but is being added)*
- RHS-FEED-101 [RHS-FEED-102] reject rocket fail to arrive alarm is not active

Relay: The Clutch initialize one-shot relay (see above) is active for one PLC scan if the following conditions are satisfied:

- RHS Feed System is Initializing
- RHS-FEED-101 [RHS-FEED-102] rocket input assembly drive motor is running in reverse

Relay: The Clutch energize one-shot relay (see above) is active for one PLC scan if the System is Running in Auto, “OK to Process” DICO from CONR-106 is active, “DFS Furnace Normal” DICO from CONR-112 is active and any of the following conditions are satisfied:

- RHS-RSM-101 [RHS-RSM-102] rocket at load position timer filter timer has expired, no rocket is in the pocket, RHS-

Table D.2. RHS PLC Automatic Control Sequences
Advisor PC Screen: **RFA [RFB]**

	FEED-101 [RHS-FEED-102] rocket input assembly drive motor is running forward, and rocket in the pocket (Advisor status) relay is not active
	• Unknown rocket in the pocket relay is active and RHS-FEED-101 [RHS-FEED-102] rocket input assembly drive motor is running in reverse
	• 02-ZS-154 [02-ZS-253] (RHS-FEED-101 [RHS-FEED-102] home) has been made - dwell timer expired and either of the following:
	  • Reject rocket in the pocket relay is active and RHS-FEED-101 [RHS-FEED-102] rocket input assembly drive motor is running in reverse
	  • Rocket in the pocket relay is active, reject rocket is not expected at the reject tray, new rocket is not expected, OK to release rocket to system (see below) and RHS-FEED-101 [RHS-FEED-102] rocket input assembly drive motor is running forward

Relay:	The OK to release rocket to system relay (see above) is active all of the following conditions are satisfied: • OK rocket expected relay is not active (i.e., we've just sent one) • No rocket present all the way to the RDS • Rocket input conveyor #1 is running forward • 04-ZS-144A [04-ZS-244A] (MMS-CNVM-103 [MMS-CNVM-104] rocket stop raised) is made
Device:	**MMS-CNVM-101 [MMS-CNVM-102] Rocket Input Conveyor #1**
Advisor PC Tag:	X02HS164 [X02HS264]
CONR:	C101A [C104A]
Driver Word:	0462 [0462]
Driver Type:	7
Auto Forward:	The auto forward relay will be active if all of the following conditions are satisfied: • RHS Feed System is initializing and 04-ZS-144A [04-ZS-244A] (MMS-CNVM-103 [MMS-CNVM-104] rocket stop raised) is made, or RHS System is Running in Auto • RHS-FEED-101 [RHS-FEED-102] unknown rocket in the pocket alarm is not active • RHS-FEED-101 [RHS-FEED-102] reject rocket fail to arrive alarm is not active • RHS-FEED-101 [RHS-FEED-102] conveyor #1 rocket fail to arrive alarm is not active • RHS-FEED-101 [RHS-FEED-102] conveyor #2 rocket fail to arrive alarm is not active
Auto Reverse:	None

Table D.2. RHS PLC Automatic Control Sequences Advisor PC Screen: **RFA [RFB]**	
Forward I-Lock:	The following conditions must be satisfied to allow the device to operate forward: • CON e-stop is not active • MMS-CNVM-103 [MMS-CNVM-104] rope switch not pulled • RHS-FEED-101 [RHS-FEED-102] conveyor #1 rocket fail to arrive alarm is not active • RHS-FEED-101 [RHS-FEED-102] unknown rocket in the pocket alarm is not active • RHS-FEED-101 [RHS-FEED-102] reject rocket fail to arrive alarm is not active • RHS-FEED-101 [RHS-FEED-102] rocket input assembly clutch is not in malfunction
Reverse I-Lock:	The following conditions must be satisfied to allow the device to operate reverse: • CON e-stop is not active • MMS-CNVM-103 [MMS-CNVM-104] rope switch not pulled
Device:	**MMS-CNVM-103 [MMS-CNVM-104] Rocket Input Conveyor #2**
Advisor PC Tag:	X04HS145 [X04HS245]
CONR:	C101A [C104A]
Driver Word:	0463 [0463]
Driver Type:	7

Auto Forward:	The auto forward relay will be active if all of the following conditions are satisfied:
	• RHS-FEED-101 [RHS-FEED-102] conveyor #2 rocket fail to arrive alarm is not active
	• RHS-RSM-101 [RHS-RSM-102] rocket fail to arrive at RDS alarm is not active
	• Either of the following:
	  • RHS Feed System is initializing and 04-ZS-144A [04-ZS-244A] (MMS-CNVM-103 [MMS-CNVM-104] rocket stop raised) is made
	  • RHS System is Running in Auto and 04-ZS-144B [04-ZS-244B] (MMS-CNVM-103 [MMS-CNVM-104] rocket stop lowered) is made or 04-ZS-144A [04-ZS-244A] (MMS-CNVM-103 [MMS-CNVM-104] rocket stop raised) is made and 04-ZS-143 [04-ZS-243] (MMS-CNVM-103 [MMS-CNVM-104] rocket present) is not made

Auto Reverse:	None
Forward I-Lock:	The following conditions must be satisfied to allow the device to operate forward: • CON e-stop is not active • MMS-CNVM-103 [MMS-CNVM-104] rope switch not pulled

Table D.2. RHS PLC Automatic Control Sequences
Advisor PC Screen: **RFA [RFB]**

Reverse I-Lock:	The following conditions must be satisfied to allow the device to operate reverse: • CON e-stop is not active • MMS-CNVM-103 [MMS-CNVM-104] rope switch not pulled
Device:	**MMS-CNVM-103 [MMS-CNVM-104] Rocket Input Conveyor #2 Rocket Stop**
Advisor PC Tag:	X04HS163B [X04HS263B]
CONR:	C101A [C104A]
Driver Word:	0464 [0464]
Driver Type:	7
Auto Raise:	The auto raise relay will be active if all of the following conditions are satisfied: • MMS-CNVM-103 [MMS-CNVM-104] rocket stop lower request (see below) is not active • System is running is auto or stop had been lowered during initialization

Auto Lower:	The auto lower relay will be active if all of the following conditions are satisfied:
	• MMS-CNVM-103 [MMS-CNVM-104] rocket stop auto raise relay is not active
	• Either of the following:
	  • RHS Feed System is initializing and stop had not been lowered during initialization
	  • RHS System is running in auto and MMS-CNVM-103 [MMS-CNVM-104] rocket stop lower request (see below) is active

Raise I-Lock:	The following conditions must be satisfied to allow the device to operate forward: • CON e-stop is not active • MMS-CNVM-103 [MMS-CNVM-104] rope switch not pulled • MMS-CNVM-103 [MMS-CNVM-104] rocket stop lower request (see below) is not active • *(AN line A only) MMS-GATE-101 through-gate blocked and gate open relay is not active (Relay is active when 04-ZS-150 (MMS-GATE-101 Through-Gate Sensor) is blocked and 03-ZS-123A (MMS-GATE-101 open) is made.*
Lower I-Lock:	The following conditions must be satisfied to allow the device to operate reverse: • CON e-stop is not active • MMS-CNVM-103 [MMS-CNVM-104] rope switch not pulled

Table D.2. RHS PLC Automatic Control Sequences
Advisor PC Screen: **RFA [RFB]**

Relay:	The MMS-CNVM-103 [MMS-CNVM-104] rocket stop lower request (see below) is latched when the following conditions are satisfied: • 03-ZS-123A [03-ZS-223A] (MMS-GATE-101 [MMS-GATE-102] open) is made • 04-ZS-143 [04-ZS-243] (MMS-CNVM-103 [MMS-CNVM-104] rocket present) is made • RHS-RSM-101 [RHS-RSM-102] RDS input conveyor running forward The MMS-CNVM-103 [MMS-CNVM-104] rocket stop lower request (see below) is unlatched when the following condition is satisfied: • 42-1PLS-3-I [42-2PLS-3-I] (rocket at punch & drain station) is made
Device:	**Reset Rocket Feed System Icon**
Advisor PC Tag:	RFARESET [RFBRESET]
CONR:	C101A [C104A]
Driver Word:	0465 [0465]
	If Reject Fail to Arrive alarm, Conveyor #1 Fail to Arrive Alarm, or Unknown Rocket in the Pocket alarm are active, the Advisor will display the message "F1 RESET METERING MACHINE." The operator presses the 'F1' key to reset the following relays: • Reject Rocket in the Pocket • Reject Rocket Expected at the Reject Tray • Rocket in the Pocket (Advisor status) • OK Rocket Expected • *(TE only)* Reset Rocket Feed System From Advisor • Unknown Rocket in the Pocket • Enable Check for Unknown Rocket

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

Device:	**MMS-GATE-102 Munition Blast Gate**
Advisor PC Tag:	X03HS233B
CONR:	C104A
Driver Word:	0660
Driver Type:	9
Auto Open:	The auto open relay will be active if the following condition is satisfied: • RDS Sequencer output "Blast Gate Open" (see sequencer charts) is active
Auto Close:	The auto close relay will be active if the following condition is satisfied: • RDS Sequencer output "Blast Gate *Close* " (see sequencer charts) is active
Open I-Lock:	The following conditions must be satisfied to allow the device to open: • CON E-Stops and 03-XS-260 (RHS-RSM-102 local E-Stop) not active • 04-XS-298A/B (MMS-CNVM-104) rope switch not pulled • 03-ZS-231B (MMS-GATE-104 closed) is made • ECR Air Pressure Normal (DICO from ICS-CONR-110) • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Close I-Lock:	The following conditions must be satisfied to allow the device to close: • CON E-Stops and 03-XS-260 (RHS-RSM-102 local E-Stop) not active • 04-XS-298A/B (MMS-CNVM-104 rope switch not pulled • "Rocket on the Way to the Drain Station" relay (see below) is not active • "Rocket Stop Lower Request" relay (see below) is not active • "MMS-GATE-102 through gate blocked and gate is open" relay is not active
Relay:	"Rocket on the Way to the Drain Station" relay (see above) is latched when either of the following conditions are satisfied: • 03-ZS-223A (MMS-GATE-102 open) is made, 04-ZS-244B (MMS-CNVM-104 rocket stop lowered) is made, MMS-CNVM-104 is running forward, and "Rocket at Positive Stop" relay is active • 42-2PLS-3-I (Rocket at Punch and Drain Station) is made and RDS Input Conveyor is running in reverse
Relay:	"Rocket on the Way to the Drain Station" relay (see above) is unlatched when any of the following conditions are satisfied: • 42-2PLS-3-I (Rocket at Punch and Drain Station) is made

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

	• MMS-CNVM-104 is running in reverse, and "Rocket at Positive Stop" relay is active • RDS feed system initializing
Relay:	"Rocket Stop Lower Request" relay (see above) is latched when the following conditions are satisfied: • 03-ZS-223A (MMS-GATE-102 open) is made • 04-ZS-243 (MMS-CNVM-104 Rocket Present) is made • RHS-RSM-102 RDS input conveyor is running forward
Relay:	"Rocket Stop Lower Request" relay (see above) is unlatched when the following condition is satisfied: • 42-2PLS-3-I (Rocket at Punch and Drain Station) is made
Relay:	"MMS-GATE-102 through gate blocked and gate is open" relay (see above) energized when the following conditions are satisfied: • 04-ZS-250 (MMS-GATE-102 Through-Gate Sensor) is blocked • 03-ZS-223A (MMS-GATE-102 open) is made
Device:	**RHS-RSM-102 RDS Input Conveyor**
Advisor PC Tag:	X42O2101
CONR:	C104A
Driver Word:	0661
Driver Type:	12
Auto Forward:	The auto forward relay will be active if both of the following conditions are satisfied: • RDS Sequencer output "RDS Conveyor Forward" (see sequencer charts) is active • RHS-RSM-102 rocket fail to arrive at RDS alarm is not active
Auto Reverse:	The auto reverse relay will be active if the following condition is satisfied: • RDS Sequencer output "RDS Conveyor Reverse" (see sequencer charts) is active

Forward I-Lock:	The following conditions must be satisfied to allow the device to operate forward:
	• CON E-Stop is not active
	• 03-XS-260 (RHS-RSM-102 E-Stop) is not active
	• Either of the following conditions are satisfied:
	  • 42-2PLS-3-I (Rocket at Punch and Drain Station) is not active
	  • 42-2PLS-4-I (RSM Pusher Home) is active
	• ECR B Explosion not detected (DICO to ICS-CONR-101A)

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Reverse I-Lock:	The following conditions must be satisfied to allow the device to operate reverse: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Device:	**RHS-RSM-102 RDS Stop/Vent Clamp Cylinder**
Advisor PC Tag:	X42O2102
CONR:	C104A
Driver Word:	0662
Driver Type:	11
Auto Clamp:	The auto clamp relay will be active if the following condition is satisfied: • RDS Sequencer output "Stop and Vent Clamp Extend" (see sequencer charts) is active
Auto Unclamp:	The auto unclamp relay will be active if the following condition is satisfied: • RDS Sequencer output "Stop and Vent Clamp Retract" (see sequencer charts) is active
Clamp I-Lock:	The following conditions must be satisfied to allow the device to extend: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Unclamp I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Device:	**RHS-RSM-102 RDS Bottom Clamp Cylinder**
Advisor PC Tag:	X42O2104
CONR:	C104A
Driver Word:	0663
Driver Type:	11
Auto Clamp:	The auto clamp relay will be active if the following condition is satisfied: • RDS Sequencer output "Bottom Clamp Extend" (see sequencer charts) is active
Auto Unclamp:	The auto unclamp relay will be active if the following condition is satisfied: • RDS Sequencer output "Bottom Clamp Retract" (see sequencer charts) is active

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Clamp I-Lock:	The following conditions must be satisfied to allow the device to extend: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Unclamp I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Device:	**RHS-RSM-102 RDS Rear Drain Punch**
Advisor PC Tag:	X42O2105
CONR:	C104A
Driver Word:	0664
Driver Type:	11
Auto Extend:	The auto extend relay will be active if the following condition is satisfied: • RDS Sequencer output “Rear Punch Extend” (see sequencer charts) is active
Auto Retract:	The auto retract relay will be active if the following condition is satisfied: • RDS Sequencer output “Rear Punch Retract” (see sequencer charts) is active

Extend I-Lock:	The following conditions must be satisfied to allow the device to extend:
	• CON E-Stop is not active
	• 03-XS-260 (RHS-RSM-102 E-Stop) is not active
	• Either of the following conditions are satisfied:
	  • “Blast Gates and ECR Man Doors Closed” relay (see below) is active
	  • RHS-RSM-102 Rear Drain Punch LMCP CON Permissive is active and HOA is set to local control
	• Either of the following conditions are satisfied:
	  • 42-2PLS-3-I (Rocket at Punch and Drain Station) is not made
	  • RDS Stop Clamp Cylinder is extended, RDS Vent Clamp Cylinder is extended, and RDS Bottom Clamp Cylinder is extended
	• ECR B Explosion not detected (DICO to ICS-CONR-101A)
	• Plant Air is available (DICO from ICS-CONR-105)

Retract I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

Relay:	"Blast Gates and ECR Man Doors Closed" relay (see above) energized when the following conditions are satisfied: • 03-ZS-223B (MMS-GATE-102 closed) is made • 03-ZS-231B (MMS-GATE-104 closed) is made • 03-ZS-238B (PHS-GATE-102 closed) is made • 03-ZS-253B (PHS-GATE-104 closed) is made • ECR Man Door are Closed and Locked (DICO from ICS-CONR-105) is active
Device:	**RHS-RSM-102 RDS Front Drain Punch**
Advisor PC Tag:	X42O2106
CONR:	C104A
Driver Word:	0665
Driver Type:	11
Auto Extend:	The auto extend relay will be active if the following condition is satisfied: • RDS Sequencer output "Front Punch Extend" (see sequencer charts) is active
Auto Retract:	The auto retract relay will be active if the following condition is satisfied: • RDS Sequencer output "Front Punch Retract" (see sequencer charts) is active

Extend I-Lock:	The following conditions must be satisfied to allow the device to extend:
	• CON E-Stop is not active
	• 03-XS-260 (RHS-RSM-102 E-Stop) is not active
	• Either of the following conditions are satisfied:
	  • "Blast Gates and ECR Man Doors Closed" relay (see below) is active
	  • RHS-RSM-102 Front Drain Punch LMCP CON Permissive is active and HOA is set to local control
	• Either of the following conditions are satisfied:
	  • 42-2PLS-3-I (Rocket at Punch and Drain Station) is not made
	  • RDS Stop Clamp Cylinder is extended, RDS Vent Clamp Cylinder is extended, and RDS Bottom Clamp Cylinder is extended
	• ECR B Explosion not detected (DICO to ICS-CONR-101A)
	• Plant Air is available (DICO from ICS-CONR-105)

Retract I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

Relay:	"Blast Gates and ECR Man Doors Closed" relay (see above) energized when the following conditions are satisfied: • 03-ZS-223B (MMS-GATE-102 closed) is made • 03-ZS-231B (MMS-GATE-104 closed) is made • 03-ZS-238B (PHS-GATE-102 closed) is made • 03-ZS-253B (PHS-GATE-104 closed) is made • ECR Man Door are Closed and Locked (DICO from ICS-CONR-105) is active
Device:	**RHS-RSM-102 RDS Vent Drain Punch**
Advisor PC Tag:	X42O2107
CONR:	C104A
Driver Word:	0666
Driver Type:	11
Auto Extend:	The auto extend relay will be active if the following condition is satisfied: • RDS Sequencer output "Vent Punch Extend" (see sequencer charts) is active
Auto Retract:	The auto retract relay will be active if the following condition is satisfied: • RDS Sequencer output "Vent Punch Retract" (see sequencer charts) is active

Extend I-Lock:	The following conditions must be satisfied to allow the device to extend:
	• CON E-Stop is not active
	• 03-XS-260 (RHS-RSM-102 E-Stop) is not active
	• Either of the following conditions are satisfied:
	  • "Blast Gates and ECR Man Doors Closed" relay (see below) is active
	  • RHS-RSM-102 Vent Drain Punch LMCP CON Permissive is active and HOA is set to local control
	• Either of the following conditions are satisfied:
	  • 42-2PLS-3-I (Rocket at Punch and Drain Station) is not made
	  • RDS Stop Clamp Cylinder is extended, RDS Vent Clamp Cylinder is extended, and RDS Bottom Clamp Cylinder is extended
	• ECR B Explosion not detected (DICO to ICS-CONR-101A)

Retract I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Relay:	"Blast Gates and ECR Man Doors Closed" relay (see above) energized when the following conditions are satisfied: • 03-ZS-223B (MMS-GATE-102 closed) is made • 03-ZS-231B (MMS-GATE-104 closed) is made • 03-ZS-238B (PHS-GATE-102 closed) is made • 03-ZS-253B (PHS-GATE-104 closed) is made • ECR Man Door are Closed and Locked (DICO from ICS-CONR-105) is active
Device:	**RHS-RSM-102 RDS Lift Table Cylinder**
Advisor PC Tag:	X42O2108
CONR:	C104A
Driver Word:	0667
Driver Type:	11
Auto Extend:	The auto extend relay will be active if the following condition is satisfied: • RDS Sequencer output "Lift Table Raise" (see sequencer charts) is active
Auto Retract:	The auto retract relay will be active if the following condition is satisfied: • RDS Sequencer output "Lift Table Lower" (see sequencer charts) is active

Extend I-Lock:	The following conditions must be satisfied to allow the device to extend:
	• CON E-Stop is not active
	• 03-XS-260 (RHS-RSM-102 E-Stop) is not active
	• Either of the following conditions are satisfied:
	  • 42-2PLS-3-I (Rocket at Punch and Drain Station) is not made
	  • RDS Stop Clamp Cylinder is retracted, RDS Vent Clamp Cylinder is retracted, RDS Bottom Clamp Cylinder is retracted, RDS Rear Drain Punch is retracted, RDS Front Drain Punch is retracted, and RDS Vent Punch is retracted
	• ECR B Explosion not detected (DICO to ICS-CONR-101A)

Retract I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Device:	**RHS-RSM-102 RDS Rotator Cylinder**
Advisor PC Tag:	X42O2109
CONR:	C104A
Driver Word:	0668
Driver Type:	11

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Auto Extend:	The auto extend relay will be active if the following condition is satisfied: • RDS Sequencer output "Rotator Actuate" (see sequencer charts) is active
Auto Retract:	The auto retract relay will be active if the following condition is satisfied: • RDS Sequencer output "Rotator Home" (see sequencer charts) is active
Extend I-Lock:	The following conditions must be satisfied to allow the device to extend: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Retract I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Device:	**RHS-RSM-102 RDS Positive Stop**
Advisor PC Tag:	X42O2110
CONR:	C104A
Driver Word:	0669
Driver Type:	11
Auto Lower:	The auto lower relay will be active if the following conditions is satisfied: • RDS Sequencer output "Positive Stop Lower" (see sequencer charts) is active
Auto Raise:	The auto raise relay will be active if the following condition is satisfied: • RDS Sequencer output "Positive Stop Raise" (see sequencer charts) is active
Lower I-Lock:	The following conditions must be satisfied to allow the device to lower: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • "Rocket on the Way to RSM" relay (see below) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Raise I-Lock:	The following conditions must be satisfied to allow the device to raise: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Relay:	The "Rocket on the Way to RSM" relay (see above) is latched when the following conditions are satisfied: • 42-2PLS-3-I (Rocket at Punch and Drain Station) is made • RHS-RSM-102 RDS Input Conveyor running forward • RDS Lift Table Cylinder retracted • RDS Positive Stop Cylinder retracted The "Rocket on the Way to RSM" relay (see above) is unlatched when *any* of the following conditions are satisfied: • "Rocket on the Way to RSM" relay is made • RHS-RSM-102 RSM Feed Conveyor running reverse and RHS-RSM-102 RDS Input Conveyor running reverse • RDS feed system initializing
Device:	**ACS-PUMP-108**
Advisor PC Tag:	X51XV56
CONR:	C104A
Driver Word:	0671
Driver Type:	4
Auto Start:	The auto start relay will be active if the following conditions are satisfied: • *RDS station step count is at or between steps 1.2 and 7.2 (see sequencer tables).* • *"Switch for Processing Rockets with Gelled Agent" relay (see below) is not active (see FAWB Note B-15).*
Start I-Lock:	The following conditions must be satisfied to allow the device to start: • O.K. to Pump Agent (DICO from ICS-CONR-106) (see below) • Fire In MDB not detected (DICO from ICS-CONR-102) • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)

DICO:	O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:
	• Either of the following conditions are satisfied:
	  • 11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active
	  • 11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active
	• Instrument Air available (DICO from ICS-CONR-105)
	• TOX HVAC Normal (DICO from ICS-CONR-110)

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

Relay:	*"Switch for Processing Rockets with Gelled Agent" relay is active when the following conditions are satisfied (see FAWB Note B-15):* • *Operator has selected gelled rocket operation icon and depressed "Start" key, or "Switch for Processing Rockets with Gelled Agent" relay is active (latch)* • *"Stop" key is not active for gelled rocket operation icon, or feed limit timer for rockets with gelled agent is timing.*
Device:	**ACS-TANK-104 Strainer Drain Valve (denoted in code as AVS tanks)**
Advisor PC Tag:	X51XV58
CONR:	C104A
Driver Word:	0672
Driver Type:	4
Auto Open:	The auto open relay will be active if any of the following conditions are satisfied: • RDS Sequencer output "AQS Strainer Drain Valve Open" (see sequencer charts) is active • *"AQS Tank in Draining Sequence" relay (see below) is active* • RDS Feed System Initializing
Open I-Lock:	The following conditions must be satisfied to allow the device to open: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)

Relay:	*"AQS Tank in Draining Sequence" relay (see above) is active when the following conditions are satisfied:*
	• *AQS Tank Purge System (purge valve auto open) timer has not expired*
	• *Either of the following conditions are satisfied:*
	  • *RDS Sequencer output "Start AQS Tank Drain" (see sequencer charts) is active*
	  • *"AQS Tank in Draining Sequence" relay (latch)*

Device:	**ACS-TANK-104 Tank Drain Valve (denoted in code as AVS tanks)**
Advisor PC Tag:	X51XV59
CONR:	C104A
Driver Word:	0673
Driver Type:	4
Auto Open:	The auto open relay will be active if any of the following conditions are satisfied: • RDS Sequencer output "Start AQS Tank Drain" (see sequencer charts) is active – latched on time delay • RDS Feed System Initializing • Tank Drain Valve Timer timing is active

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Open I-Lock:	The following conditions must be satisfied to allow the device to open: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • Fire In MDB not detected (DICO from ICS-CONR-102) • ECR B Explosion not detected (DICO to ICS-CONR-101A) • O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)

DICO:	O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:
	• Either of the following conditions are satisfied:
	  • 11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High-High alarm) is not active
	  • 11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High-High alarm) is not active
	• Instrument Air available (DICO from ICS-CONR-105)
	• TOX HVAC Normal (DICO from ICS-CONR-110)

Device:	**ACS-TANK-104 Strainer Vacuum Valve (denoted in code as AVS tanks)**
Advisor PC Tag:	X51XV64
CONR:	C104A
Driver Word:	0674
Driver Type:	4
Auto Open:	The auto open relay will be active if any of the following conditions are satisfied: • RDS Sequencer output “AQS Strainer Vacuum Valve Open” (see sequencer charts) is active
Open I-Lock:	The following conditions must be satisfied to allow the device to open: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • Fire In MDB not detected (DICO from ICS-CONR-102) • ECR B Explosion not detected (DICO to ICS-CONR-105) • O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)
DICO:	O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied: • Either of the following conditions are satisfied: • 11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High-High alarm) is not active

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

	• 11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High-High alarm) is not active • Instrument Air available (DICO from ICS-CONR-105) • TOX HVAC Normal (DICO from ICS-CONR-110)
Device:	**ACS-TANK-104 Tank Vacuum Valve (denoted in code as AVS tanks)**
Advisor PC Tag:	X51XV57
CONR:	C104A
Driver Word:	0675
Driver Type:	4
Auto Open:	The auto open relay will be active if any of the following conditions are satisfied: • RDS Sequencer output "AQS Tank Vacuum Valve Open" (see sequencer charts) is active
Open I-Lock:	The following conditions must be satisfied to allow the device to open: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • 51-XV-065A/B (ACS-TANK-104 Level Isolate Valves) closed • Fire In MDB not detected (DICO from ICS-CONR-102) • ECR B Explosion not detected (DICO to ICS-CONR-105) • O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)
DICO:	O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied: • Either of the following conditions are satisfied: • 11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High-High alarm) is not active • 11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High-High alarm) is not active • Instrument Air available (DICO from ICS-CONR-105) • TOX HVAC Normal (DICO from ICS-CONR-110)
Device:	**ACS-TANK-104 Tank Level Purge Valve (denoted in code as AVS tanks)**
Advisor PC Tag:	X51XV65C
CONR:	C104A
Driver Word:	0676
Driver Type:	4

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

Auto Open:	The auto open relay will be active (unlatched after time delay) if both of the following conditions are satisfied: • "AQS Tank in Draining Sequence" relay (see below) is active • *RDS Sequencer output "AQS Tank Drain Sequence Start" (see sequencer charts) is not active*

Open I-Lock:	The following conditions must be satisfied to allow the device to open:
	• CON E-Stop is not active
	• 03-XS-260 (RHS-RSM-102 E-Stop) is not active
	• Fire In MDB not detected (DICO from ICS-CONR-102)
	• ECR B Explosion not detected (DICO to ICS-CONR-105)
	• O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)
	• 51-XV-065B (ACS-TANK-104 Level Isolate Valve) open output not active.
	• Either of the following conditions are satisfied:
	  • 51-ZS-058A (Strainer Drain Valve open) is made
	  • 51-ZS-064A (Strainer Vacuum Valve open) is made and 51-ZS-057A (AQS Tank Vacuum Valve open) is made

Relay:	"AQS Tank in Draining Sequence" relay (see above) is active when the following conditions are satisfied:
	• AQS Tank Purge System (purge valve auto open) timer has not expired
	• Either of the following conditions are satisfied:
	  • RDS Sequencer output "Start AQS Tank Drain" (see sequencer charts) is active
	  • "AQS Tank in Draining Sequence" relay (latch)

DICO:	O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:
	• Either of the following conditions are satisfied:
	  • 11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active
	  • 11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active
	• Instrument Air available (DICO from ICS-CONR-105)
	• TOX HVAC Normal (DICO from ICS-CONR-110)

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

Device:	**ACS-TANK-104 Tank Level Isolation Valve (denoted in code as AVS tanks)**
Advisor PC Tag:	X51XV65A
CONR:	C104A
Driver Word:	0677
Driver Type:	4
Auto Open:	The auto open relay will be active (unlatched after time delay) if any of the following conditions are satisfied: • RDS Sequencer output "AQS Tank Level Isolation Valve Open" (see sequencer charts) is active • RDS Feed System Initializing

Open I-Lock:	The following conditions must be satisfied to allow the device to open:
	• CON E-Stop is not active
	• 03-XS-260 (RHS-RSM-102 E-Stop) is not active
	• Fire In MDB not detected (DICO from ICS-CONR-102)
	• ECR B Explosion not detected (DICO to ICS-CONR-105)
	• O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)
	• 51-XV-065C (ACS-TANK-104 Purge Valve) *open output not active*
	• Either of the following conditions are satisfied:
	  • 51-ZS-058A (Strainer Drain Valve open) is made
	  • 51-ZS-064A (Strainer Vacuum Valve open) is made and 51-ZS-057A (AQS Tank Vacuum Valve open) is made

DICO:	O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:
	• Either of the following conditions are satisfied:
	  • 11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active
	  • 11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active
	• Instrument Air available (DICO from ICS-CONR-105)
	• TOX HVAC Normal (DICO from ICS-CONR-110)

Device:	**RHS-RSM-102 RSM Feed Conveyor**
Advisor PC Tag:	X42O2201
CONR:	C104A
Driver Word:	0680
Driver Type:	12

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Auto Forward:	The auto forward relay will be active if both of the following conditions are satisfied: • RSM Sequencer output "RSM Conveyor Forward" (see sequencer charts) is active • RHS-RSM-102 rocket fail to stage at shear station alarm is not active
Auto Reverse:	The auto reverse relay will be active if the following condition is satisfied: • RSM Sequencer output "RSM Conveyor Reverse" (see sequencer charts) is active
Forward I-Lock:	The following conditions must be satisfied to allow the device to operate forward: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • 42-2PLS-3-I (Rocket at Punch and Drain Station) is not made or 42-2PLS-4-I (RSM Pusher in Home Position) is made • 42-2PLS-5B-I (RSM Rocket Too Far Forward) is made or 42-2PLS-6-I (RSM Rocket at Index Stop) is not made • ECR B Explosion not detected (DICO to ICS-CONR-101A) • RHS-RSM-102 rocket fail to stage at shear station alarm is not active
Reverse I-Lock:	The following conditions must be satisfied to allow the device to operate reverse: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Device:	**RHS-RSM-102 RSM Index Stop Cylinder**
Advisor PC Tag:	X42O2203
CONR:	C104A
Driver Word:	0681
Driver Type:	11
Auto Extend:	The auto extend relay will be active if *any* of the following conditions *are* satisfied: • RSM Sequencer output "Close Index Stops (Extend)" (see sequencer charts) is active • *RSM feed conveyor forward driver link is active and 42-2PLS-6-I (Rocket at Index Stop) is made* • *RSM index stop cylinder auto extend relay (latch) is active and 42-2203A1-I (RSS Rocket Index Collar Stop Extended) is not active*
Auto Retract:	The auto retract relay will be active if the following condition *is* satisfied: • RSM Sequencer output "Open Index Stops (Retract)" (see sequencer charts) is active

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

Extend I-Lock:	The following conditions must be satisfied to allow the device to extend: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Retract I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Device:	**RHS-RSM-102 RSM Pusher**
Advisor PC Tag:	X42O2202
CONR:	C104A
Driver Word:	0682
Driver Type:	12

Auto Forward:	The auto forward relay will be active if *either* of the following conditions are satisfied:
	• RSM Sequencer output "Index Pusher Forward" (see sequencer charts) is active, *and* RHS-RSM-102 rocket fail to stage at shear station alarm is not active
	• *Operator has selected "Exercise Pusher" icon and depressed "Start" key, and either of the following conditions are satisfied:*
	  • *Exercise pusher auto forward delay timer is done (2-sec timer that starts when pusher is in home position)*
	  • *42-2202 (RSM pusher motor reverse link) is not active and RSM pusher motor auto forward relay (latch) is active*

Auto Reverse:	The auto reverse relay will be active if both of the following conditions are satisfied:
	• RSM Sequencer output "Index Pusher Reverse" (see sequencer charts) is active
	• *Operator has selected "Exercise Pusher" icon and depressed "Start" key, and either of the following conditions are satisfied:*
	  • *Exercise pusher auto reverse delay timer is done (2-sec timer that starts when pusher is in the command position +/- 0.1 in.)*
	  • *42-2PLS-4-I (RSM Pusher in Home Position) is not active and RSM pusher motor auto reverse relay (latch) is active*

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Forward I-Lock:	The following conditions must be satisfied to allow the device to operate forward: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • Pusher encoder position indicates less than 280" travel • Pusher encoder diagnostic alarm is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A) • Agent LB/HR to DFS Prealarm not active

Reverse I-Lock:	The following conditions must be satisfied to allow the device to operate reverse:
	• CON E-Stop is not active
	• 03-XS-260 (RHS-RSM-102 E-Stop) is not active
	• ECR B Explosion not detected (DICO to ICS-CONR-101A)
	• *Any of the following conditions is satisfied:*
	  • *RSM Sequencer input "Rocket Not Fully Forward" (see sequencer charts) is not active*
	  • *"Rocket shear machine is at step 10.2" relay is active*
	  • *42-2202 RSM Pusher Motor is not in Auto.*
	  • *"Switch for Processing Rockets with End Caps" relay (see below) is not active.*

Relay:	*"Switch for Processing Rockets with End Caps" relay (see FAWB Note B-17) is active when the following conditions are satisfied:* • *Operator has selected processing rockets with end caps icon and depressed "Start" key, or "Switch for Processing Rockets with End Caps" relay is active (latch)* • *"Stop" key is not active for processing rockets with end caps icon.*
Device:	**RHS-RSM-102 Process Water to Shear Blade**
Advisor PC Tag:	X42O2204
CONR:	C104A
Driver Word:	0683
Driver Type:	4
Auto Open:	The auto forward relay will be active if the following condition is satisfied: • RSM Sequencer output "Water Spray On" (see sequencer charts) is active
Open I-Lock:	The following conditions must be satisfied to allow the device to operate: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A) • Fire In MDB not detected (DICO from ICS-CONR-102)

Table D.3. TOCDF RHS PLC Automatic Control Sequences
Advisor PC Screen: **RDB**

- DFS Furnace is Normal (DICO from ICS-CONR-112) (on time delay)
- DFS Furnace 38 Rockets/HR Prealarm (DICO from ICS-CONR-112) is not active
- Heel of current rocket is > 0 lb.
- *Agent heel not received at DFS relay is not active*

Device: **RHS-RSM-102 RSM Shear Cylinder**
Advisor PC Tag: X42O2205
CONR: C104A
Driver Word: 0684
Driver Type: 11

Auto Extend: The auto extend relay will be active if the following condition is satisfied:
- RSM Sequencer output "Extend Shear Blade" (see sequencer charts) is active

Auto Retract: The auto retract relay will be active if the following condition is satisfied:
- RSM Sequencer output "Retract Shear Blade" (see sequencer charts) is active

Extend I-Lock: The following conditions must be satisfied to allow the device to extend:
- DFS Furnace 38 Rockets/HR Prealarm (DICO from ICS-CONR-112) is not active
- Heel of current rocket is > 0 lb.
- "Manual Burster Drop Required" relay is not active
- *Process Water to Shear Blade Open Driver is active*
- *DFS Furnace 17 Agent LBS/HR Prealarm (DICO from ICS-CONR-112) is not active*
- CON E-Stop is not active
- 03-XS-260 (RHS-RSM-102 E-Stop) is not active
- Any of the following conditions are satisfied:
  - 03-FSL-181 (PRW to shear flow O.K.) is made
  - RSM shear cylinder is in manual and 42-2PLS-6-I (Rocket at Index Stop) is not made
  - System Park in Progress and 42-2PLS-6-I (Rocket at Index Stop) is not made
- Index pusher is not in the path of the shear blade
- Either of the following conditions are satisfied:
  - "Blast Gates and ECR Man Doors Closed" relay (see below) is active
  - RHS-RSM-102 RSM Shear Cylinder LMCP CON Permissive is active and HOA is set to local control
- ECR B Explosion not detected (DICO to ICS-CONR-101A)

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Retract I-Lock:	The following conditions must be satisfied to allow the device to retract: • CON E-Stop is not active • 03-XS-260 (RHS-RSM-102 E-Stop) is not active • ECR B Explosion not detected (DICO to ICS-CONR-101A)
Relay:	"Blast Gates and ECR Man Doors Closed" relay (see above) energized when the following conditions are satisfied: • 03-ZS-223B (MMS-GATE-102 closed) is made • 03-ZS-231B (MMS-GATE-104 closed) is made • 03-ZS-238B (PHS-GATE-102 closed) is made • 03-ZS-253B (PHS-GATE-104 closed) is made • ECR Man Door are Closed and Locked (DICO from ICS-CONR-105) is active
Device:	**RHS-RSM-102 PRW/Decon to Shear Blade Select Icon**
Advisor PC Tag:	X03HS287
CONR:	C104A
Driver Word:	0685
Driver Type:	4 (manual only) The operator selects this icon and issues a manual "OPEN" command to select decon or a manual "CLOSE" command to select process water. Process Water is the default when the device is in "AUTO".
Auto Open:	None.
Open I-Lock:	The following conditions must be satisfied to allow selection of decon: • ECR A Explosion not detected (DICI from ICS-CONR-101A) • Fire In MDB not detected (DICO from ICS-CONR-102)
Device:	**RHS-RSM-102 Air Blast to Proximity Switches (42-XV-021)**
Advisor PC Tag:	X42XV021
CONR:	C104A
Driver Word:	0686
Driver Type:	None - Not a standard driver The operator selects this icon and issues a manual "OPEN" command to provide air to the RSM proximity switches. There is no "AUTO/MANUAL" status nor interlocks. When the RSM is running in auto, the valve opens. When the RSM station is no longer running in auto, the valve closes. However, the operator can subsequently manually open the valve and it will remain open until it is manually closed.
Device:	**RDS-B Station Mode Icon**
Advisor PC Tag:	RDSTBMODE
CONR:	C104A
Driver Word:	0705
Driver Type:	NA

Table D.3. TOCDF RHS PLC Automatic Control Sequences Advisor PC Screen: **RDB**	
Auto Start:	None The operator selects this icon to control the "AUTO/MANUAL" status of the RDS sequencer.
Device:	**RSM-B Station Mode Icon**
Advisor PC Tag:	RSSTBMODE
CONR:	C104A
Driver Word:	0706
Driver Type:	NA
Auto Start:	None The operator selects this icon to control the "AUTO/MANUAL" status of the RSM sequencer.
Device:	**RDS-B Station Repeat/Bypass Icon**
Advisor PC Tag:	RDSTBBPRP
CONR:	C104A
Driver Word:	0707
Driver Type:	NA
Auto Start:	None The operator selects this icon and issues a manual "REPEAT" command to repeat a step of the RDS sequencer or a manual "BYPASS" command to bypass a step of the RDS sequencer. Only some steps may be bypassed or repeated (see sequencer charts).
Device:	**RSM-B Station Repeat/Bypass Icon**
Advisor PC Tag:	RSSTBBPRP
CONR:	C104A
Driver Word:	0708
Driver Type:	NA
Auto Start:	None The operator selects this icon and issues a manual "REPEAT" command to repeat a step of the RSM sequencer or a manual "BYPASS" command to bypass a step of the RSM sequencer. Only some steps may be bypassed or repeated (see sequencer charts).

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***MMS-GATE-101 [MMS-GATE-102] Munition Blast Gate***
Advisor PC Tag:	*X03HS135B [X03HS233B]*
CONR:	*C101A [C104A]*
Driver Word:	*0660 [0660]*
Driver Type:	*9*
Auto Open:	*The auto open relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Blast Gate Open" (see sequencer charts) is active*
Auto Close:	*The auto close relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Blast Gate Close" (see sequencer charts) is active*
Open I-Lock:	*The following conditions must be satisfied to allow the device to open:* • *CON E-Stops and 03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] local E-Stop) not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *04-XS-198A/B [04-XS-298A/B] (MMS-CNVM-103 [MMS-CNVM-104]) rope switch not pulled* • *03-ZS-131B [03-ZS-231B] (MMS-GATE-103 closed) is made* • *ECR Air Pressure Normal (DICO from ICS-CONR-110)* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Close I-Lock:	*The following conditions must be satisfied to allow the device to close:* • *CON E-Stops and 03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] local E-Stop) not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *04-XS-198A/B [04-XS-298A/B] (MMS-CNVM-103 [MMS-CNVM-104]) rope switch not pulled* • *"Rocket on the Way to the Drain Station" relay (see below) is not active* • *"Rocket Stop Lower Request" relay (see below) is not active* • *"MMS-GATE-101 [MMS-GATE-102] through gate blocked and gate is open" relay is not active*
Relay:	*"Rocket on the Way to the Drain Station" relay (see above) is latched when either of the following conditions are satisfied:* • *03-ZS-123 [03-ZS-223A] (MMS-GATE-101 [MMS-GATE-102] open) is made, 04-ZS-144B [04-ZS-244B] (MMS-CNVM-103 [MMS-CNVM-104] rocket stop lowered) is made, MMS-*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

	CNVM-103 [MMS-CNVM-104] is running forward, and "Rocket at Positive Stop" relay is active • *42-1PLS-3-I [42-2PLS-3-I](Rocket at Punch and Drain Station) is made and RDS Input Conveyor is running in reverse*
Relay:	*"Rocket on the Way to the Drain Station" relay (see above) is unlatched when any of the following conditions is satisfied:* • *42-1PLS-3-I [42-2PLS-3-I](Rocket at Punch and Drain Station) is made* • *MMS-CNVM-103 [MMS-CNVM-104] is running in reverse, and "Rocket at Positive Stop" relay is active* • *RDS feed system initializing*
Relay:	*"Rocket Stop Lower Request" relay (see above) is latched when the following conditions are satisfied:* • *03-ZS-123 [03-ZS-223A] (MMS-GATE-101 [MMS-GATE-102] open) is made* • *04-ZS-143 [04-ZS-243] (MMS-CNVM-103 [MMS-CNVM-104] Rocket Present) is made* • *RHS-RSM-101 [RHS-RSM-102] RDS input conveyor is running forward*
Relay:	*"Rocket Stop Lower Request" relay (see above) is unlatched when the following condition is satisfied:* • *42-1PLS-3-I [42-2PLS-3-I](Rocket at Punch and Drain Station) is made*
Relay:	*"MMS-GATE-101 [MMS-GATE-102] through gate blocked and gate is open" relay (see above) is energized when the following conditions are satisfied:* • *04-ZS-150 [04-ZS-250] (MMS-GATE-101 [MMS-GATE-102] Through-Gate Sensor) is blocked* • *03-ZS-123A [03-ZS-223A] (MMS-GATE-101 [MMS-GATE-102] open) is made*
Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Input Conveyor***
Advisor PC Tag:	*X42O1101 [X42O2101]*
CONR:	*C101A [C104A]*
Driver Word:	*0661 [0661]*
Driver Type:	*12*
Auto Forward:	*The auto forward relay will be active if both of the following conditions are satisfied:* • *RDS Sequencer output "RDS Conveyor Forward" (see sequencer charts) is active* • *RHS-RSM-101 [RHS-RSM-102] rocket fail to arrive at RDS alarm is not active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Auto Reverse:	*The auto reverse relay will be active if the following condition is satisfied:* • *RDS Sequencer output "RDS Conveyor Reverse" (see sequencer charts) is active*

Forward I-Lock:	*The following conditions must be satisfied to allow the device to operate forward:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *Any of the following conditions are satisfied:*
	  • *42-1PLS-3-I [42-2PLS-3-I] (Rocket at Punch and Drain Station) is not active*
	  • *42-1PLS-4-I [42-2PLS-4-I] (RSM Pusher Home) is active*
	  • *42-1110A-I [42-2110A-I] (RDS Positive Stop Cylinder Extended) is active*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*

Reverse I-Lock:	*The following conditions must be satisfied to allow the device to operate reverse:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Stop/Vent Clamp Cylinder***
Advisor PC Tag:	*X42O1102 [X42O2102]*
CONR:	*C101A [C104A]*
Driver Word:	*0662 [0662]*
Driver Type:	*11*
Auto Clamp:	*The auto clamp relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Stop and Vent Clamp Extend" (see sequencer charts) is active*
Auto Unclamp:	*The auto unclamp relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Stop and Vent Clamp Retract" (see sequencer charts) is active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	
Clamp I-Lock:	*The following conditions must be satisfied to allow the device to extend:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Unclamp I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Bottom Clamp Cylinder***
Advisor PC Tag:	*X42O1104 [X42O2104]*
CONR:	*C101A [C104A]*
Driver Word:	*0663 [0663]*
Driver Type:	*11*
Auto Clamp:	*The auto clamp relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Bottom Clamp Extend" (see sequencer charts) is active*
Auto Unclamp:	*The auto unclamp relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Bottom Clamp Retract" (see sequencer charts) is active*
Clamp I-Lock:	*The following conditions must be satisfied to allow the device to extend:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	
Unclamp I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Rear Drain Punch***
Advisor PC Tag:	*X42O1105 [X42O2105]*
CONR:	*C101A [C104A]*
Driver Word:	*0664 [0664]*
Driver Type:	*11*
Auto Extend:	*The auto extend relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Rear Punch Extend" (see sequencer charts) is active*
Auto Retract:	*The auto retract relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Rear Punch Retract" (see sequencer charts) is active*

Extend I-Lock:	*The following conditions must be satisfied to allow the device to extend:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *Either of the following conditions are satisfied:*
	  • *"Blast Gates and ECR Man Doors Closed" relay (see below) is active*
	  • *RHS-RSM-101 [RHS-RSM-102] Rear Drain Punch LMCP CON Permissive is active and HOA is set to local control*
	• *Either of the following conditions are satisfied:*
	  • *42-1PLS-3-I [42-2PLS-3-I](Rocket at Punch and Drain Station) is not made*
	  • *RDS Stop Clamp Cylinder is extended, RDS Vent Clamp Cylinder is extended and RDS Bottom Clamp Cylinder is extended*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
	• *Plant Air is available (DICO from ICS-CONR-105)*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	
Retract I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Relay:	*"Blast Gates and ECR Man Doors Closed" relay (see above) energized when the following conditions are satisfied:* • *03-ZS-123B [03-ZS-223B] (MMS-GATE-101 [MMS-GATE-102] closed) is made* • *03-ZS-131B [03-ZS-231B] (MMS-GATE-103 [MMS-GATE-104] closed) is made* • *(Not @ PB) 03-ZS-138B [03-ZS-238B] PHS-GATE-101 [PHS-GATE-102] closed) is made* • *(Not @ PB) 03-ZS-153B [03-ZS-253B] (PHS-GATE-103 [PHS-GATE-104] closed) is made* • *ECR Man Door are Closed and Locked (DICO from ICS-CONR-105) is active*
Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Front Drain Punch***
Advisor PC Tag:	*X42O1106 [X42O2106]*
CONR:	*C101A [C104A]*
Driver Word:	*0665 [0665]*
Driver Type:	*11*
Auto Extend:	*The auto extend relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Front Punch Extend" (see sequencer charts) is active*
Auto Retract:	*The auto retract relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Front Punch Retract" (see sequencer charts) is active*
Extend I-Lock:	*The following conditions must be satisfied to allow the device to extend:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	

	• *Either of the following conditions are satisfied:*
	  • *"Blast Gates and ECR Man Doors Closed" relay (see below) is active*
	  • *RHS-RSM-101 [RHS-RSM-102] Front Drain Punch LMCP CON Permissive is active and HOA is set to local control*
	• *Either of the following conditions are satisfied:*
	  • *42-1PLS-3-I [42-2PLS-3-I](Rocket at Punch and Drain Station) is not made*
	  • *RDS Stop Clamp Cylinder is extended, RDS Vent Clamp Cylinder is extended and RDS Bottom Clamp Cylinder is extended*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
	• *Plant Air is available (DICO from ICS-CONR-105)*

Retract I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Relay:	*"Blast Gates and ECR Man Doors Closed" relay (see above) energized when the following conditions are satisfied:* • *03-ZS-123B [03-ZS-223B] (MMS-GATE-101 [MMS-GATE-102] closed) is made* • *03-ZS-131B [03-ZS-231B] (MMS-GATE-103 [MMS-GATE-104] closed) is made* • *(Not @ PB) 03-ZS-138B [03-ZS-238B] (PHS-GATE-101 [PHS-GATE-102] closed) is made* • *(Not @ PB) 03-ZS-153B [03-ZS-253B] (PHS-GATE-103 [PHS-GATE-104] closed) is made* • *ECR Man Door are Closed and Locked (DICO from ICS-CONR-105) is active*
Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Vent Drain Punch***
Advisor PC Tag:	*X42O1107 [X42O2107]*
CONR:	*C101A [C104A]*
Driver Word:	*0666 [0666]*
Driver Type:	*11*
Auto Extend:	*The auto extend relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Vent Punch Extend" (see sequencer charts) is active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Auto Retract:	*The auto retract relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Vent Punch Retract" (see sequencer charts) is active*

Extend I-Lock:	*The following conditions must be satisfied to allow the device to extend:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *Either of the following conditions are satisfied:*
	  • *"Blast Gates and ECR Man Doors Closed" relay (see below) is active*
	  • *RHS-RSM-101 [RHS-RSM-102] Vent Drain Punch LMCP CON Permissive is active and HOA is set to local control*
	• *Either of the following conditions are satisfied:*
	  • *42-1PLS-3-I [42-2PLS-3-I](Rocket at Punch and Drain Station) is not made*
	  • *RDS Stop Clamp Cylinder is extended, RDS Vent Clamp Cylinder is extended and RDS Bottom Clamp Cylinder is extended*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*

Retract I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Relay:	*"Blast Gates and ECR Man Doors Closed" relay (see above) energized when the following conditions are satisfied:* • *03-ZS-123B [03-ZS-223B] (MMS-GATE-101 [MMS-GATE-102] closed) is made* • *03-ZS-131B [03-ZS-231B] (MMS-GATE-103 [MMS-GATE-104] closed) is made* • *(Not @ PB) 03-ZS-138B [03-ZS-238B] (PHS-GATE-101 [PHS-GATE-102] closed) is made*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

	• *(Not @ PB) 03-ZS-153B [03-ZS-253B] (PHS-GATE-103 [PHS-GATE-104] closed) is made* • *ECR Man Door are Closed and Locked (DICO from ICS-CONR-105) is active*
Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Lift Table Cylinder***
Advisor PC Tag:	*X42O1108 [X42O2108]*
CONR:	*C101A [C104A]*
Driver Word:	*0667 [0667]*
Driver Type:	*11*
Auto Extend:	*The auto extend relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Lift Table Raise" (see sequencer charts) is active*
Auto Retract:	*The auto retract relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Lift Table Lower" (see sequencer charts) is active*

Extend I-Lock:	*The following conditions must be satisfied to allow the device to extend:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *Either of the following conditions are satisfied:*
	  • *42-1PLS-3-I [42-2PLS-3-I](Rocket at Punch and Drain Station) is not made*
	  • *RDS Stop Clamp Cylinder is retracted, RDS Vent Clamp Cylinder is retracted, RDS Bottom Clamp Cylinder is retracted, RDS Rear Drain Punch is retracted, RDS Front Drain Punch is retracted, and RDS Vent Punch is retracted*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*

Retract I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Rotator Cylinder***
Advisor PC Tag:	*X42O1109 [X42O2109]*
CONR:	*C101A [C104A]*
Driver Word:	*0668 [0668]*
Driver Type:	*11*
Auto Extend:	*The auto extend relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Rotator Actuate" (see sequencer charts) is active*
Auto Retract:	*The auto retract relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Rotator Home" (see sequencer charts) is active*
Extend I-Lock:	*The following conditions must be satisfied to allow the device to extend:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Retract I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Device:	***RHS-RSM-101 [RHS-RSM-102] RDS Positive Stop***
Advisor PC Tag:	*X42O1110 [X42O2110]*
CONR:	*C101A [C104A]*
Driver Word:	*0669 [0669]*
Driver Type:	*11*
Auto Raise:	*The auto raise relay will be active if the following condition is satisfied:* • *RDS Sequencer output "Positive Stop Raise" (see sequencer charts) is active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Auto Lower:	*The auto lower relay will be active if the following conditions is satisfied:* • *RDS Sequencer output "Positive Stop Lower" (see sequencer charts) is active*
Raise I-Lock:	*The following conditions must be satisfied to allow the device to raise:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *"Rocket on the Way to RSM" relay (see below) is not active* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Lower I-Lock:	*The following conditions must be satisfied to allow the device to lower:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Relay:	*The "Rocket on the Way to RSM" relay (see above) is latched when the following conditions are satisfied:* • *42-1PLS-3-I [42-2PLS-3-I] (Rocket at Punch and Drain Station) is made* • *RHS-RSM-101 [RHS-RSM-102] RDS Input Conveyor running forward* • *RDS Lift Table Cylinder retracted* • *RDS Positive Stop Cylinder retracted* *The "Rocket on the Way to RSM" relay (see above) is unlatched when any of the following conditions are satisfied:* • *"Rocket on the Way to RSM" relay is made and 42-1PLS-6-I [42-2PLS-6-I] (RSM Rocket at Index Stop) is made* • *RHS-RSM-101 [RHS-RSM-102] RSM Feed Conveyor running reverse and RHS-RSM-101 [RHS-RSM-102] RDS Input Conveyor running reverse* • *RDS feed system initializing and RSM station sequencer input OK is active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***(AN ONLY) ECR A [ECR B] Gate Wash***
Advisor PC Tag:	*X03XV161 [X03XV261]*
CONR:	*C101A [C104A]*
Driver Word:	*0671 [0671]*
Driver Type:	*4*
Auto Start:	*The auto start relay is active when the ECR A [ECR B] gate wash cycle timer is timing. The timer starts timing upon receipt of a"MMS-GATE-103 [MMS-GATE-104] gate washdown request," DICO from ICS-CONR-112 (see below), and latches in until the timer is done.* *NOTE: The ECR A [ECR B] gate wash start driver energizes three discrete outputs: 1) 03-XV-161 [03-XV-261], 2) 03-XV-174 [03-XV-274], and 3) 03-HY-176 [03-HY-276] which open 3 valves in the process water line that supplies gate spray water.*
Start I-Lock:	*None*
DICO:	*"MMS-GATE-103 [MMS-GATE-104] gate washdown request," DICO from ICS-CONR-112 (see above) is active when both of the following conditions are satisfied:* • *MMS-GATE-103 [MMS-GATE-104] open output relay is active* • *03-ZS-131B [03-ZS-231B] (MMS-GATE-103 [MMS-GATE-104] closed) is not made*
Device:	***(PB/UM ONLY) ECR A [ECR B] Fire Detector & Photoeye Air Blast Air Supply***
Advisor PC Tag:	*X03XV161 [X03XV261]*
CONR:	*C101A [C104A]*
Driver Word:	*0671 [0671]*
Driver Type:	*4*
Auto Open:	*There is no auto open driver for this valve. The valve opens automatically when the RSM station is running in auto.*
Open I-Lock:	*The following conditions must be satisfied to allow the device to open:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Device:	***ACS-FILT-103 [ACS-FILT-104] 3-Way Valve***
Advisor PC Tag:	*X51XV52 [X51XV58]*
CONR:	*C101A [C104A]*
Driver Word:	*0672 [0672]*
Driver Type:	*4 (manual only)*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	
Auto Open:	*None*
Open I-Lock:	*The following conditions must be satisfied to allow the device to open (Open is defined as energized to align with the 'A' strainer):* • *Fire In MDB not detected (DICO from ICS-CONR-102)* • *(PB/UM only) ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])* • *(PB/UM only) CON E-Stop is not active* • *(PB/UM only) 03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
Device:	***(PB/UM only) ACS-FILT-103 [ACS-FILT-104] Filter Vacuum Valve (AN does not have filter vacuum valves, see FAWB Note B-16)***
Advisor PC Tag:	*X51XV65 [X51XV72]*
CONR:	*C101A [C104A]*
Driver Word:	*0673 [0673]*
Driver Type:	*4*
Auto Open:	*None*
Open I-Lock:	*The following conditions must be satisfied to allow the device to open:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *Fire In MDB not detected (DICO from ICS-CONR-102)* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [DICO to ICS-CONR-105])* • *O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)*

DICO:	*O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active*
	  • *11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active*
	• *Instrument Air available (DICO from ICS-CONR-105)*
	• *TOX HVAC Normal (DICO from ICS-CONR-110)*
	• *"Shut down BDS Pumps" relay is not active (see below) or (UM only) 11-LIT-109 (ACS-TANK-102 level) high alarm is not active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Relay:	*"Shut down BDS Pumps" (ICS-CONR-106) (see above) relay becomes active when 11-LIT-93 (ACS-TANK-101 level) indicates ³ (84" @ AN, 68" @ PB, 78" @ UM) and (AN only) 11-LIT-109 (ACS-TANK-102 level) indicates ³ 99". At PB and UM, the relay de-activates when 11-LIT-93 (ACS-TANK-101 level) indicates < (66" @ PB, 76" @ UM).*
Device:	***ACS-FILT-103 [ACS-FILT-104] Filter Drain Valve***
Advisor PC Tag:	*X51XV69 [X51XV80]*
CONR:	*C101A [C104A]*
Driver Word:	*0674 [0674]*
Driver Type:	*4*
Auto Open:	*The auto open relay will be active if any of the following conditions are satisfied:* • *RDS Sequencer output "Strainer Drain Valve Open" (see sequencer charts) is active*

Open I-Lock:	*The following conditions must be satisfied to allow the device to open:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
	• *51-PIT-051 [51-PIT-057] ACS-TANK-103 [ACS-TANK-104] pressure is less than 16.0 psia.*
	• *(PB/UM only) Either of the following:*
	  • *51-XV-052 [51-XV-058] is aligned to filter 'A' and 51-ZS-065B [51-ZS-72B], ACS-TANK-103 [ACS-TANK-104] Filter Vacuum Valve closed, is active*
	  • *51-XV-052 [51-XV-058] is aligned to filter 'B' and 51-ZS-068B [51-ZS-73B], ACS-TANK-103 [ACS-TANK-104] Filter Vacuum Valve closed, is active*

Device:	***ACS-PUMP-109 [ACS-PUMP-108]***
Advisor PC Tag:	*X51XV50 [X51XV56]*
CONR:	*C101A [C104A]*
Driver Word:	*0675 [0675]*
Driver Type:	*4*
Auto Start:	*The auto start relay is active if the following conditions are satisfied:* • *RDS station step count is at or between steps 1.2 and 7.2 (see sequencer tables).*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	
Start I-Lock:	*The following conditions must be satisfied to allow the device to start:* • *O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)* • *Fire In MDB not detected (DICO from ICS-CONR-102)* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*

DICO:	*O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active*
	  • *11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active*
	• *Instrument Air available (DICO from ICS-CONR-105)*
	• *TOX HVAC Normal (DICO from ICS-CONR-110)*
	• *"Shut down BDS Pumps" relay is not active (see below) or (UM only) 11-LIT-109 (ACS-TANK-102 level) high alarm is not active*

Relay:	*"Shut down BDS Pumps" (ICS-CONR-106) (see above) relay becomes active when 11-LIT-93 (ACS-TANK-101 level) indicates ³ (84" @ AN, 68" @ PB, 78" @ UM) and (AN only) 11-LIT-109 (ACS-TANK-102 level) indicates ³ 99". At PB and UM, the relay de-activates when 11-LIT-93 (ACS-TANK-101 level) indicates < (66" @ PB, 76" @ UM).*
Device:	***ACS-TANK-103 [ACS-TANK-104] Tank Drain Valve***
Advisor PC Tag:	*X51XV53 [X51XV59]*
CONR:	*C101A [C104A]*
Driver Word:	*0676 [0676]*
Driver Type:	*4*
Auto Open (AN):	*The auto open relay will be active if either of the following conditions are satisfied:* • *RDS Sequencer output "AQS Tank Drain Sequence Start" (see sequencer charts) is active (after 1 sec time delay), and AQS tank draining timer is not done (timer starts when 51-ZS-053A [51-ZS-059A] ACS-TANK-103 [ACS-TANK-104] Tank Drain Valve open is made and expires after 5 sec)* • *RDS Feed System Initializing*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Auto Open (PB/UM):	*The auto open relay will be active after a 5-sec time delay if the following conditions are satisfied:* • *RDS Sequencer output "AQS Tank Drain Sequence Start" (see sequencer charts) is active* • *51-XV-070 [51-XV-080] ACS-TANK-103 [ACS-TANK-104] level isolation valves open output relay is not active*

Open I-Lock:	*The following conditions must be satisfied to allow the device to open:*
	• *O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)*
	• *Fire In MDB not detected (DICO from ICS-CONR-102)*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [DICO to ICS-CONR-101A])*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *(PB/UM only) Either of the following:*
	  • *51-XV-052 [51-XV-058] is aligned to filter 'A' and 51-ZS-065B [51-ZS-72B], ACS-TANK-103 [ACS-TANK-104] Filter Vacuum Valve closed, is active*
	  • *51-XV-052 [51-XV-058] is aligned to filter 'B' and 51-ZS-068B [51-ZS-73B], ACS-TANK-103 [ACS-TANK-104] Filter Vacuum Valve closed, is active*

DICO:	*O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active*
	  • *11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active*
	• *Instrument Air available (DICO from ICS-CONR-105)*
	• *TOX HVAC Normal (DICO from ICS-CONR-110)*
	• *"Shut down BDS Pumps" relay is not active (see below) or (UM only) 11-LIT-109 (ACS-TANK-102 level) high alarm is not active*

Relay:	*"Shut down BDS Pumps" (ICS-CONR-106) (see above) relay becomes active when 11-LIT-93 (ACS-TANK-101 level) indicates ³ (84" @ AN, 68" @ PB, 78" @ UM) and (AN only) 11-LIT-109 (ACS-TANK-102 level) indicates ³ 99". At PB and UM, the relay de-activates when 11-LIT-93 (ACS-TANK-101 level) indicates < (66" @ PB, 76" @ UM).*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***ACS-TANK-103 [ACS-TANK-104] Tank Vacuum Valve***
Advisor PC Tag:	*X51XV51 [X51XV57]*
CONR:	*C101A [C104A]*
Driver Word:	*0677 [0677]*
Driver Type:	*4*
Auto Open:	*The auto open relay will be active if the following condition is satisfied:* • *RDS Sequencer output "AQS Tank Vacuum Valve" (see sequencer charts) is active (5-sec time delay at AN)*

Open I-Lock:	*The following conditions must be satisfied to allow the device to open:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *ACS-TANK-103 [ACS-TANK-104] Level Isolate Valves closed (51-XV-055A/B [51-XV-065A/B] @ AN, 51-XV-070A/B [51-XV-081A/B] @ PB/UM)*
	• *Fire In MDB not detected (DICO from ICS-CONR-102)*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [DICO to ICS-CONR-105])*
	• *O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)*
	• *(PB/UM only) Either of the following:*
	  • *51-XV-052 [51-XV-058] is aligned to filter 'A' and 51-ZS-065B [51-ZS-72B], ACS-TANK-103 [ACS-TANK-104] Filter Vacuum Valve closed, is active*
	  • *51-XV-052 [51-XV-058] is aligned to filter 'B' and 51-ZS-068B [51-ZS-73B], ACS-TANK-103 [ACS-TANK-104] Filter Vacuum Valve closed, is active*

DICO:	*O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active*
	  • *11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active*
	• *Instrument Air available (DICO from ICS-CONR-105)*
	• *TOX HVAC Normal (DICO from ICS-CONR-110)*
	• *"Shut down BDS Pumps" relay is not active (see below) or (UM only) 11-LIT-109 (ACS-TANK-102 level) high alarm is not active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Relay:	*"Shut down BDS Pumps" (ICS-CONR-106) (see above) relay becomes active when 11-LIT-93 (ACS-TANK-101 level) indicates ³ (84" @ AN, 68" @ PB, 78" @ UM) and (AN only) 11-LIT-109 (ACS-TANK-102 level) indicates ³ 99". At PB and UM, the relay de-activates when 11-LIT-93 (ACS-TANK-101 level) indicates < (66" @ PB, 76" @ UM).*
Device:	***(AN ONLY)) 51-XV-070 [51-XV-081] ACS-TANK-103 [ACS-TANK-104] Tank Level Purge Valve***
Advisor PC Tag:	*X51XV70 [X51XV81]*
CONR:	*C101A [C104A]*
Driver Word:	*0678 [0678]*
Driver Type:	*4*

Auto Open:	*The auto open relay will be active if any of the following conditions are satisfied:*
	• *"AQS Tank Draining" timer (see below) is enabled and the timer value is ≤ 2 seconds*
	• *"AQS Filter Drain Valve Open Timer for Purge" relay is active (see below)*
	• *ACS-TANK-103 [ACS-TANK-104] tank level valve pre-purge timer is timing (1-sec timer begins timing when 51-ZS-051B [51-XV-057B], tank vacuum valve open, is not active.)*
	• *All of the following conditions are satisfied:*
	  • *51-XV-053 [51-XV-059] tank drain valve is not in auto*
	  • *51-XV-053 [51-XV-059] tank drain valve open timer is enabled*
	  • *51-XV-053 [51-XV-059] tank drain valve closed timer done is not active*

Open I-Lock:	*The following conditions must be satisfied to allow the device to open:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *Fire In MDB not detected (DICO from ICS-CONR-102)*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [DICO to ICS-CONR-105])*
	• *O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)*
	• *51-XV-055A/B [51-XV-065A/B] (ACS-TANK-103 [ACS-TANK-104] Level Isolate Valve) open output not active.*
	• *Either of the following conditions are satisfied:*
	  • *51-ZS-051A [51-ZS-057A] ACS-TANK-103 [ACS-TANK-104] vacuum valve open is made*
	  • *Selected strainer drain valve is open (strainer A selected and 51-ZS-069A [51-ZS-080A] is made OR strainer B selected and 51-ZS-064A [51-ZS-071A] is made)*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	

Timer:	*"AQS Tank Draining" timer (see above) is enabled when the following conditions are satisfied:*
	• *RDS Sequencer output "AQS Tank Drain Sequence Start" (see sequencer charts) is active*
	• *Either of the following conditions are satisfied:*
	  • *51-ZS-053A [51-ZS-059A], ACS-TANK-103 [ACS-TANK-104] drain valve is open*
	  • *"AQS Tank Draining" timer is enabled (latch)*

Relay:	*"AQS Filter Drain Valve Open Timer for Purge" relay is active when the following conditions are satisfied:* • *51-XV-069/064 [51-XV-080/071], ACS-FILT-103 [ACS-FILT-104] AQS filter drain valve open driver is active* • *"AQS Filter Drain Valve Open for Purge" timer is not done (timer begins timing when 51-XV-069/064 [51-XV-080/071], ACS-FILT-103 [ACS-FILT-104] AQS filter drain valve open driver is active)*

DICO:	*O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active*
	  • *11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active*
	• *Instrument Air available (DICO from ICS-CONR-105)*
	• *TOX HVAC Normal (DICO from ICS-CONR-110)*
	• *"Shut down BDS Pumps" relay is not active (see below) or (UM only) 11-LIT-109 (ACS-TANK-102 level) high alarm is not active*

Relay:	*"Shut down BDS Pumps" (ICS-CONR-106) (see above) relay becomes active when 11-LIT-93 (ACS-TANK-101 level) indicates ³ (84" @ AN, 68" @ PB, 78" @ UM) and (AN only) 11-LIT-109 (ACS-TANK-102 level) indicates ³ 99". At PB and UM, the relay de-activates when 11-LIT-93 (ACS-TANK-101 level) indicates < (66" @ PB, 76" @ UM).*
Device:	***(PB/UM ONLY) 51-XV-107 [51-XV-117] ACS-TANK-103 [ACS-TANK-104] Tank Level Purge Valve***
Advisor PC Tag:	*X51XV107 [X51XV117]*
CONR:	*C101A [C104A]*
Driver Word:	*0678 [0678]*
Driver Type:	*4*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Auto Open:	*The auto open relay will be active if both of the following conditions are satisfied:* • *ACS-TANK-103 [ACS-TANK-104] tank drain valve open purge timer is timing (2-sec timer begins when 51-XV-053 [51-XV-059] tank drain valve open driver is active and 51-ZS-053B [51-XV-059B], tank drain valve closed, is not active.)* • *ACS-TANK-103 [ACS-TANK-104] tank level valve pre-purge timer is timing (timer times for a single CPU scan when 51-ZS-051B [51-XV-057B], tank vacuum valve closed, is active.)* • *"Delay to Start Tank Level Measurement" timer is done (see below) and "AQS Purge System" timer is greater than 2 seconds (see below)*

Open I-Lock:	*The following conditions must be satisfied to allow the device to open:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *Fire In MDB not detected (DICO from ICS-CONR-102)*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [DICO to ICS-CONR-105])*
	• *O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)*
	• *51-XV-070A/B [51-XV-081A/B] (ACS-TANK-103 [ACS-TANK-104] Level Isolate Valve) open output not active.*
	• *Either of the following conditions are satisfied:*
	  • *Selected strainer drain valve is open (strainer A selected and 51-ZS-069A [51-ZS-080A] is made OR strainer B selected and 51-ZS-064A [51-ZS-071A] is made)*
	  • *Selected strainer vacuum valve is open (strainer A selected and 51-ZS-065A [51-ZS-072A] is made OR strainer B selected and 51-ZS-068A [51-ZS-073A] is made) and 51-ZS-051A [51-ZS-057A] (AQS Tank Vacuum Valve open) is made*

Timers:	*"Delay to Start Tank Level Measurement" timer (see above) and "AQS Purge System" timer (see above) are active when the following conditions are satisfied:*
	• *51-XV-050 [51-XV-056], ACS-PUMP-109 [ACS-PUMP-108] plant air valve is open*
	• *51-ZS-051A [51-ZS-057A], AQS tank vacuum valve is open*
	• *Either of the following conditions are satisfied:*
	  • *51-ZS-064A [51-ZS-071A], ACS-FILT-103 [ACS-FILT-104] strainer B drain valve is open*
	  • *51-ZS-069A [51-ZS-080A], ACS-FILT-103 [ACS-FILT-104] strainer A drain valve is open*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	
	Note: "AQS Purge System" timer automatically resets and begins timing again as long as the above conditions remain satisfied.

DICO:	*O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active*
	  • *11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active*
	• *Instrument Air available (DICO from ICS-CONR-105)*
	• *TOX HVAC Normal (DICO from ICS-CONR-110)*
	• *"Shut down BDS Pumps" relay is not active (see below) or (UM only) 11-LIT-109 (ACS-TANK-102 level) high alarm is not active*

Relay:	*"Shut down BDS Pumps" (ICS-CONR-106) (see above) relay becomes active when 11-LIT-93 (ACS-TANK-101 level) indicates ³ (84" @ AN, 68" @ PB, 78" @ UM) and (AN only) 11-LIT-109 (ACS-TANK-102 level) indicates ³ 99". At PB and UM, the relay de-activates when 11-LIT-93 (ACS-TANK-101 level) indicates < (66" @ PB, 76" @ UM).*
Device:	***(AN ONLY) 51-XV-055A/B [51-XV-065A/B] ACS-TANK-103 [ACS-TANK-104] Tank Level Isolation Valves***
Advisor PC Tag:	*X51XV55AB [X51XV65AB]*
CONR:	*C101A [C104A]*
Driver Word:	*0679 [0679]*
Driver Type:	*4*
Auto Open:	*The auto open relay will be active if any of the following conditions are satisfied:* • *RDS Sequencer output "AQS Tank Isolate Valve Open" (see sequencer charts) is active and 51-ZS-051B [51-ZS-057B] ACS-TANK-103 [ACS-TANK-104] vacuum valve closed is active (3-sec time delay)* • *"AQS Tank Draining" timer is done* • *RDS Feed System Initializing*
Open I-Lock:	*The following conditions must be satisfied to allow the device to open:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *Fire In MDB not detected (DICO from ICS-CONR-102)* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [DICO to ICS-CONR-105])*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

	• *O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)*
	• *51-XV-070 [51-XV-081] (ACS-TANK-103 [ACS-TANK-104] Purge Valve) open output not active*
	• *Either of the following conditions are satisfied:*
	  • *51-ZS-051A [51-ZS-057A] ACS-TANK-103 [ACS-TANK-104] vacuum valve open is made*
	  • *Selected strainer drain valve is open (strainer A selected and 51-ZS-069A [51-ZS-080A] is made OR strainer B selected and 51-ZS-064A [51-ZS-071A] is made)*

Timer:	*"AQS Tank Draining" timer (see above) begins timing when the following conditions are satisfied:*
	• *RDS Sequencer output "AQS Tank Drain Sequence Start" (see sequencer charts) is active*
	• *Either of the following conditions is satisfied:*
	  • *51-ZS-053A [51-ZS-059A], ACS-TANK-103 [ACS-TANK-104] drain valve is open*
	  • *"AQS Tank Draining" timer is enabled (latch)*

DICO:	*O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active*
	  • *11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active*
	• *Instrument Air available (DICO from ICS-CONR-105)*
	• *TOX HVAC Normal (DICO from ICS-CONR-110)*
	• *"Shut down BDS Pumps" relay is not active (see below) or (UM only) 11-LIT-109 (ACS-TANK-102 level) high alarm is not active*

Relay:	*"Shut down BDS Pumps" (ICS-CONR-106) (see above) relay becomes active when 11-LIT-93 (ACS-TANK-101 level) indicates ³ (84" @ AN, 68" @ PB, 78" @ UM) and (AN only) 11-LIT-109 (ACS-TANK-102 level) indicates ³ 99". At PB and UM, the relay de-activates when 11-LIT-93 (ACS-TANK-101 level) indicates < (66" @ PB, 76" @ UM).*
Device:	***(PB/UM ONLY) 51-XV-070A/B [51-XV-081A/B] ACS-TANK-103 [ACS-TANK-104] Tank Level Isolation Valves***
Advisor PC Tag:	*X51XV70AB [X51XV81AB]*
CONR:	*C101A [C104A]*
Driver Word:	*0679 [0679]*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Driver Type:	*4*
Auto Open:	*The auto open relay will be active if either of the following conditions is satisfied:* • *RDS Sequencer output "AQS Tank Isolate Valve Open" (see sequencer charts) is active and 51-ZS-051B [51-ZS-057B] ACS-TANK-103 [ACS-TANK-104] vacuum valve closed is active (3-sec time delay)* • *"AVS Tank Empty" timer is done (5-sec timer begins timing when RDS Sequencer output "AQS Tank Drain Sequence Start" {see sequencer charts} is active) and 51-ZS-053B [51-ZS-059B] ACS-TANK-103 [ACS-TANK-104] drain valve closed is active*

Open I-Lock:	*The following conditions must be satisfied to allow the device to open:*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *Fire In MDB not detected (DICO from ICS-CONR-102)*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [DICO to ICS-CONR-105])*
	• *O.K. to Pump Agent (DICO from ICS-CONR-106) (see below)*
	• *51-XV-107 [51-XV-117] (ACS-TANK-103 [ACS-TANK-104] Purge Valve) open output not active*
	• *Either of the following conditions are satisfied:*
	  • *Selected strainer drain valve is open (strainer A selected and 51-ZS-069A [51-ZS-080A] is made OR strainer B selected and 51-ZS-064A [51-ZS-071A] is made)*
	  • *Selected strainer vacuum valve is open (strainer A selected and 51-ZS-065A [51-ZS-072A] is made OR strainer B selected and 51-ZS-068A [51-ZS-073A] is made) and 51-ZS-051A [51-ZS-057A] (AQS Tank Vacuum Valve open) is made*

DICO:	*O.K. to Pump Agent (DICO from ICS-CONR-106) (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *11-ZS-081A (ACS-TANK-101 from RSM open) is made, 11-ZS-084A (ACS-TANK-101 from RSM/MPB open) is made, 11-LSHH-91 (ACS-TANK-101 Level High High alarm) is not active*
	  • *11-ZS-088A (ACS-TANK-102 from RSM open) is made, 11-ZS-086A (ACS-TANK-102 from RSM/MPB open) is made, 11-LSHH-111 (ACS-TANK-102 Level High High alarm) is not active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

	• *Instrument Air available (DICO from ICS-CONR-105)* • *TOX HVAC Normal (DICO from ICS-CONR-110)* • *"Shut down BDS Pumps" relay is not active (see below) or (UM only) 11-LIT-109 (ACS-TANK-102 level) high alarm is not active*
Relay:	*"Shut down BDS Pumps" (ICS-CONR-106) (see above) relay becomes active when 11-LIT-93 (ACS-TANK-101 level) indicates ³ (84" @ AN, 68" @ PB, 78" @ UM) and (AN only) 11-LIT-109 (ACS-TANK-102 level) indicates ³ 99". At PB and UM, the relay de-activates when 11-LIT-93 (ACS-TANK-101 level) indicates < (66" @ PB, 76" @ UM).*
Device:	***RHS-RSM-101 [RHS-RSM-102] RSM Feed Conveyor***
Advisor PC Tag:	*X42O1201 [X42O2201]*
CONR:	*C101A [C104A]*
Driver Word:	*0680 [0680]*
Driver Type:	*12*
Auto Forward:	*The auto forward relay will be active if both of the following conditions are satisfied:* • *RSM Sequencer output "RSM Conveyor Forward" (see sequencer charts) is active* • *RHS-RSM-101 [RHS-RSM-102] rocket fail to stage at shear station alarm is not active*
Auto Reverse:	*The auto reverse relay will be active if the following condition is satisfied:* • *RSM Sequencer output "RSM Conveyor Reverse" (see sequencer charts) is active*
Forward I-Lock:	*The following conditions must be satisfied to allow the device to operate forward:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *42-1PLS-3-I [42-2PLS-3-I](Rocket at Punch and Drain Station) is not made or 42-1PLS-4-I [42-2PLS-4-I](RSM Pusher in Home Position) is made* • *42-1PLS-5B-I [42-2PLS-5B-I] (RSM Rocket Too Far Forward) is made or 42-1PLS-6-I [42-2PLS-6-I] (RSM Rocket at Index Stop) is not made* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])* • *(AN only) RHS-RSM-101 [RHS-RSM-102] rocket fail to stage at shear station alarm is not active*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	
Reverse I-Lock:	*The following conditions must be satisfied to allow the device to operate reverse:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Device:	***RHS-RSM-101 [RHS-RSM-102] RSM Index Stop Cylinder***
Advisor PC Tag:	*X42O1203 [X42O2203]*
CONR:	*C101A [C104A]*
Driver Word:	*0681 [0681]*
Driver Type:	*11*
Auto Extend:	*The auto extend relay will be active if the following condition is satisfied:* • *RSM Sequencer output "Close Index Stops (Extend)" (see sequencer charts) is active*
Auto Retract:	*The auto retract relay will be active if the following condition is satisfied:* • *RSM Sequencer output "Open Index Stops (Retract)" (see sequencer charts) is active*
Extend I-Lock:	*The following conditions must be satisfied to allow the device to extend:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Retract I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***RHS-RSM-101 [RHS-RSM-102] RSM Pusher***
Advisor PC Tag:	*X42O1202 [X42O2202]*
CONR:	*C101A [C104A]*
Driver Word:	*0682 [0682]*
Driver Type:	*12*
Auto Forward:	*The auto forward relay will be active if both of the following conditions are satisfied:* • *RSM Sequencer output "Index Pusher Forward" (see sequencer charts) is active* • *RHS-RSM-101 [RHS-RSM-102] rocket fail to stage at shear station alarm is not active*
Auto Reverse:	*The auto reverse relay will be active if both of the following conditions are satisfied:* • *RSM Sequencer output "Index Pusher Reverse" (see sequencer charts) is active* • *42-1PLS-4-I [42-2PLS-4-I] (RSM Pusher in Home Position) is not made*
Forward I-Lock:	*The following conditions must be satisfied to allow the device to operate forward:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *Pusher encoder diagnostic alarm is not active* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])* • *Agent LB/HR to DFS Prealarm not active* • *MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling relay is not active (see below)* • *(PB/UM only) 42-1205B [42-2205B] RSM shear cylinder retracted is made*
Reverse I-Lock:	*The following conditions must be satisfied to allow the device to operate reverse:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

	• *Any of the following conditions are satisfied:*
	  • *(Not @ PB Line A) RSM Sequencer input "Rocket Fully Forward" (see sequencer charts) is not active*
	  • *(Not @ AN/PB Line A) Rocket Shear Machine is at Step 10.2*
	  • *(Not @ PB Line A) RHS-RSM-101 [RHS-RSM-102] RSM pusher motor is not in auto*
	  • *(Not @ AN/PB Line A) Switch for processing rockets with end caps is not active (see FAWB Note B-17)*

Relay:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay (see above) is latched when the "MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see below) is active.*
Relay:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay (see above) is unlatched after a 1-sec time delay when the following conditions are satisfied:* • *MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see below) is not active.* • *03-ZS-131 [03-ZS-231] (MMS-GATE-103 [MMS-GATE-104]) closed is active*

DICO:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see above) is active when either of the following conditions are satisfied:*
	• *03-ZS-131A [03-ZS-231A] (MMS-GATE-103 [MMS-GATE-104] open) is made*
	• *"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay is active (latch) and either of the following*
	  • *"DFS-GATE-101 [DFS-GATE-102] open latched" relay (see below) is not active (DICO to ICS-CONR-101A [ICS-CONR-104A])*
	  • *16-ZS-080B [16-ZS-081B] (DFS-GATE-101 [DFS-GATE-102] closed) is not made*

DICO:	*"DFS-GATE-101 [DFS-GATE-102] open latched" relay DICO from ICS-CONR-112 (see above) is active when either of the following conditions are satisfied:* • *03-ZS-080A [03-ZS-081A] (DFS-GATE-101 [DFS-GATE-102] open) is made* • *"DFS-GATE-101 [DFS-GATE-102] open latched" relay is active (latch) and 16-ZS-080B [16-ZS-081B] (DFS-GATE-101 [DFS-GATE-102] closed) is not made*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***RHS-RSM-101 [RHS-RSM-102] Process Water to Shear Blade***
Advisor PC Tag:	*X42O1204 [X42O2204]*
CONR:	*C101A [C104A]*
Driver Word:	*0683 [0683]*
Driver Type:	*4*
Auto Open:	*The auto open relay will be active if the following condition is satisfied:* • *RSM Sequencer output "Water Spray On" (see sequencer charts) is active*
Open I-Lock:	*The following conditions must be satisfied to allow the device to operate:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])* • *Fire In MDB not detected (DICO from ICS-CONR-102)* • *DFS Furnace is Normal (DICO from ICS-CONR-112) (on time delay)* • *DFS Furnace 38 Rockets/HR Prealarm (DICO from ICS-CONR-112) is not active* • *Heel of current rocket is > 0 lb.*
Device:	***RHS-RSM-101 [RHS-RSM-102] RSM Shear Cylinder***
Advisor PC Tag:	*X42O1205 [X42O2205]*
CONR:	*C101A [C104A]*
Driver Word:	*0684 [0684]*
Driver Type:	*11*
Auto Extend:	*The auto extend relay will be active if the following condition is satisfied:* • *RSM Sequencer output "Extend Shear Blade" (see sequencer charts) is active*
Auto Retract:	*The auto retract relay will be active if the following condition is satisfied:* • *RSM Sequencer output "Retract Shear Blade" (see sequencer charts) is active*
Extend I-Lock:	*The following conditions must be satisfied to allow the device to extend:* • *DFS Furnace 38 Rockets/HR Prealarm (DICO from ICS-CONR-112) is not active* • *Heel of current rocket is > 0 lb.*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

	• *"Manual Burster Drop Required" relay is not active*
	• *CON E-Stop is not active*
	• *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active*
	• *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
	• *Any of the following conditions are satisfied:*
	  • *03-FSL-240 [03-FSL-242] (PRW to shear flow O.K.) or 03-FSL-241 [03-FSL-243] (decon to shear flow O.K.) is made*
	  • *RSM shear cylinder is in manual and 42-1PLS-6-I [42-2PLS-6-I] (Rocket at Index Stop) is not made*
	  • *System Park in Progress and 42-1PLS-6-I [42-2PLS-6-I] (Rocket at Index Stop) is not made*
	• *Index pusher is not in the path of the shear blade*
	• *Either of the following conditions are satisfied:*
	  • *"Blast Gates and ECR Man Doors Closed" relay (see below) is active*
	  • *RHS-RSM-101 [RHS-RSM-102] RSM Shear Cylinder LMCP CON Permissive is active and HOA is set to local control*
	• *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
	• *DFS-GATE-101 [DFS-GATE-102] gate closed (DICO from ICS-CONR-112) is made*
	• *"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see below) is not active*
	• *(PB/UM only) RSM station pusher cut position count < 8*

Retract I-Lock:	*The following conditions must be satisfied to allow the device to retract:* • *CON E-Stop is not active* • *03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active* • *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])* • *ECR A [ECR B] Explosion not detected (DICO to ICS-CONR-104A [ICS-CONR-101A])*
Relay:	*"Blast Gates and ECR Man Doors Closed" relay (see above) energized when the following conditions are satisfied:* • *03-ZS-123B [03-ZS-223B] (MMS-GATE-101 [MMS-GATE-102] closed) is made* • *03-ZS-131B [03-ZS-231B] (MMS-GATE-103 [MMS-GATE-104] closed) is made*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

	• *(Not @ PB) 03-ZS-138B [03-ZS-238B] (PHS-GATE-101 [PHS-GATE-102] closed) is made* • *(Not @ PB) 03-ZS-153B [03-ZS-253B] (PHS-GATE-103 [PHS-GATE-104] closed) is made* • *ECR Man Door are Closed and Locked (DICO from ICS-CONR-105) is active*

DICO:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see above) is active when either of the following conditions are satisfied:*
	• *03-ZS-131A [03-ZS-231A] (MMS-GATE-103 [MMS-GATE-104] open) is made*
	• *"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay is active (latch) and either of the following*
	  • *"DFS-GATE-101 [DFS-GATE-102] open latched" relay (see below) is not active (DICO to ICS-CONR-101A [ICS-CONR-104A])*
	  • *16-ZS-080B [16-ZS-081B] (DFS-GATE-101 [DFS-GATE-102] closed) is not made*

DICO:	*"DFS-GATE-101 [DFS-GATE-102] open latched" relay DICO from ICS-CONR-112 (see above) is active when either of the following conditions are satisfied:* • *03-ZS-080A [03-ZS-081A] (DFS-GATE-101 [DFS-GATE-102] open) is made* • *"DFS-GATE-101 [DFS-GATE-102] open latched" relay is active (latch) and 16-ZS-080B [16-ZS-081B] (DFS-GATE-101 [DFS-GATE-102] closed) is not made*
Device:	***RHS-RSM-101 [RHS-RSM-102] PRW/Decon to Shear Blade Select Icon***
Advisor PC Tag:	*X03HS286 [X03HS287]*
CONR:	*C101A [C104A]*
Driver Word:	*0685 [0685]*
Driver Type:	*4 (manual only)* *The operator selects this icon and issues a manual "OPEN" command to select decon or a manual "CLOSE" command to select process water. Process Water is the default when the device is in "AUTO".*
Auto Open:	*None.*
Open I-Lock:	*The following conditions must be satisfied to allow selection of decon:* • *ECR A Explosion not detected (DICO to ICS-CONR-104A [DICI from ICS-CONR-101A])* • *Fire In MDB not detected (DICO from ICS-CONR-102)*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***(AN ONLY) RHS-RSM-101 [RHS-RSM-102] Air Blast to Proximity Switches (42-XV-011 [42-XV-021])***
Advisor PC Tag:	*X42XV011 [X42XV021]*
CONR:	*C101A [C104A]*
Driver Word:	*0686 [0686]*
Driver Type:	*None - Not a standard driver* *The operator selects this icon and issues a manual "OPEN" command to provide air to the RSM proximity switches. There is no "AUTO/MANUAL" status nor interlocks. When the RSM is running in auto, the valve opens. When the RSM station is no longer running in auto, the valve closes. However, the operator can subsequently manually open the valve and it will remain open until it is manually closed.*
Device:	***(AN ONLY) DFS-GATE-101 [DFS-GATE-102] Washdown Water***
Advisor PC Tag:	*X03XV177 [X03XV277]*
CONR:	*C101A [C104A]*
Driver Word:	*0687 [0687]*
Driver Type:	*4*
Auto Start:	*The auto start relay will be active if either of the following conditions is satisfied:* • *"Upper Gate Sprays" cycle timer value ≥ 175 seconds (see below).* • *03-XS-161 [03-XS-261] RHS-HOPP-101 [RHS-HOPP-102] discharge chute fire is not active (Line A is DICO from ICS-CONR-112).* *NOTE: The DFS gate washdown water start driver energizes three discrete outputs: 1) 03-XV-174 [03-XV-274], 2) 03-HY-176 [03-HY-276], and 3) 03-XV-177 [03-XV-277], which open the 3 valves in the process water line that supplies gate spray water.*
Start I-Lock:	*None*
Timer:	*"Upper Gate Sprays" cycle timer (see above) begins timing when the following conditions are satisfied:* • *"Upper Gate Sprays" cycle timer is not done* • *"Rocket Piece on DFS Gate" relay (see below) is active*

Relay:	*"Rocket Piece on DFS Gate" relay (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *42-1PLS-4-I [42-2PLS-4-I] (RSM Pusher Home) is not made, 42-1PLS-6-I [42-2PLS-6-I] (RSM Rocket at Index Stop) is made, and 42-1205A [42-2205A] RSM shear cylinder extended is made*
	  • *Any of the following:*
	  • *"Fuze or Tail Pieces on DFS Feed Gate" relay is active (DICO to ICS-CONR-112)*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

	• *"Burster Pieces on DFS Feed Gate" relay is active (DICO to ICS-CONR-112)* • *"Rocket Motor Pieces on DFS Feed Gate" relay is active (DICO to ICS-CONR-112)* • *"Manual Burster Drop Required" relay is active (DICO to ICS-CONR-112)*
Relay:	*"Rocket Piece on DFS Gate" relay (see above) is unlatched when the following conditions are satisfied:* • *03-ZS-131B [03-ZS-231B] (MMS-GATE-103 closed) is made* • *MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling relay is not active (see below)*
Relay:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay (see above) is latched when the "MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see below) is active.*
Relay:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay (see above) is unlatched after a 1-sec time delay when the following conditions are satisfied:* • *MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see below) is not active.* • *03-ZS-131 [03-ZS-231] (MMS-GATE-103 [MMS-GATE-104]) closed is active*

DICO:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see above) is active when either of the following conditions are satisfied:*
	• *03-ZS-131A [03-ZS-231A] (MMS-GATE-103 [MMS-GATE-104] open) is made*
	• *"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay is active (latch) and either of the following*
	  • *"DFS-GATE-101 [DFS-GATE-102] open latched" relay (see below) is not active (DICO to ICS-CONR-101A [ICS-CONR-104A])*
	  • *16-ZS-080B [16-ZS-081B] (DFS-GATE-101 [DFS-GATE-102] closed) is not made*

DICO:	*"DFS-GATE-101 [DFS-GATE-102] open latched" relay DICO from ICS-CONR-112 (see above) is active when either of the following conditions are satisfied:* • *03-ZS-080A [03-ZS-081A] (DFS-GATE-101 [DFS-GATE-102] open) is made* • *"DFS-GATE-101 [DFS-GATE-102] open latched" relay is active (latch) and 16-ZS-080B [16-ZS-081B] (DFS-GATE-101 [DFS-GATE-102] closed) is not made*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***(PB/UM ONLY) DFS GATE Spray Water Operator Initiated Auto Cycle***
Advisor PC Tag:	*X03HY176 [X03HY276]*
CONR:	*C101A [C104A]*
Driver Word:	*0687 [0687]*
Driver Type:	*NA*
Auto Cycle:	*The auto open relay is active when an operator selects the DFS Gate Spray icon and places it in auto. Activation of the auto cycle relay initiates a 90-sec timer. If that timer expires, a 5-second timer begins that energizes the output for the spray valves. Both timers reset and the 90-sec timer begins again as long as the auto cycle relay remains active (NOTE: The cycle can also be initiated when the RSM shear station is running in auto and the "Rocket Piece on DFS Gate" relay (see below) is active)* *NOTE: The DFS Gate Spray start driver energizes three discrete outputs: 1) 03-XV-174 [03-XV-274], 2) 03-HY-176 [03-HY-276], and 3) 03-XV-177 [03-XV-277], which open the 3 valves in the process water line that supplies gate spray water.*
Open I-Lock:	*None*

Relay:	*"Rocket Piece on DFS Gate" relay (see above) is latched when the following conditions are satisfied:*
	• *Either of the following conditions are satisfied:*
	  • *42-1PLS-4-I [42-2PLS-4-I] (RSM Pusher Home) is not made, 42-1PLS-6-I [42-2PLS-6-I] (RSM Rocket at Index Stop) is made, and 42-1205A [42-2205A] RSM shear cylinder extended is made*
	  • *Any of the following:*
	  • *"Fuze or Tail Pieces on DFS Feed Gate" relay is active (DICO to ICS-CONR-112)*
	  • *"Burster Pieces on DFS Feed Gate" relay is active (DICO to ICS-CONR-112)*
	  • *"Rocket Motor Pieces on DFS Feed Gate" relay is active (DICO to ICS-CONR-112)*
	  • *"Manual Burster Drop Required" relay is active (DICO to ICS-CONR-112)*

Relay:	*"Rocket Piece on DFS Gate" relay (see above) is unlatched when the following conditions are satisfied:* • *03-ZS-131B [03-ZS-231B] (MMS-GATE-103 closed) is made* • *MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling relay is not active (see below)*

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***	
Relay:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay (see above) is latched when the "MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see below) is active.*
Relay:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay (see above) is unlatched after a 1-sec time delay when the following conditions are satisfied:* • *MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see below) is not active.* • *03-ZS-131 [03-ZS-231] (MMS-GATE-103 [MMS-GATE-104]) closed is active*

DICO:	*"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" DICO from ICS-CONR-112 (see above) is active when either of the following conditions are satisfied:*
	• *03-ZS-131A [03-ZS-231A] (MMS-GATE-103 [MMS-GATE-104] open) is made*
	• *"MMS-GATE-103 [MMS-GATE-104] and DFS-GATE-101 [DFS-GATE-102] are cycling" relay is active (latch) and either of the following*
	  • *"DFS-GATE-101 [DFS-GATE-102] open latched" relay (see below) is not active (DICO to ICS-CONR-101A [ICS-CONR-104A])*
	  • *16-ZS-080B [16-ZS-081B] (DFS-GATE-101 [DFS-GATE-102] closed) is not made*

DICO:	*"DFS-GATE-101 [DFS-GATE-102] open latched" relay DICO from ICS-CONR-112 (see above) is active when either of the following conditions are satisfied:* • *03-ZS-080A [03-ZS-081A] (DFS-GATE-101 [DFS-GATE-102] open) is made* • *"DFS-GATE-101 [DFS-GATE-102] open latched" relay is active (latch) and 16-ZS-080B [16-ZS-081B] (DFS-GATE-101 [DFS-GATE-102] closed) is not made*
Device:	***(AN LINE B, PB LINE B & UM ONLY) Switch For Processing Rockets With End Caps Icon (see FAWB Note B-17)***
Advisor PC Tag:	*RDA1ECAP [RDB1ECAP]*
CONR:	*C101A [C104A]*
Driver Word:	*0690 [0690]*
Driver Type:	*NA*
Auto Start:	*None*
	The operator selects this icon and issues a manual "START" command to select processing rockets with end caps or a manual "STOP" command to de-select it.

Table D.4. ANCDF, PBCDF, and UMCDF RHS PLC Automatic Control Sequences Advisor PC Screen: ***RDA [RDB]***

Device:	***RDS-A [RDS-B] Station Mode Icon***
Advisor PC Tag:	*RDSTAMODE [RDSTBMODE]*
CONR:	*C101A [C104A]*
Driver Word:	*0705 [0705]*
Driver Type:	*NA*
Auto Start:	*None* *The operator selects this icon to control the "AUTO/MANUAL" status of the RDS sequencer.*
Device:	***RSM-A [RSM-B] Station Mode Icon***
Advisor PC Tag:	*RSSTAMODE [RSSTBMODE]*
CONR:	*C101A [C104A]*
Driver Word:	*0706 [0706]*
Driver Type:	*NA*
Auto Start:	*None* *The operator selects this icon to control the "AUTO/MANUAL" status of the RSM sequencer.*
Device:	***RDS-A [RDS-B] Station Repeat/Bypass Icon***
Advisor PC Tag:	*RDSTABPRP [RDSTBBPRP]*
CONR:	*C101A [C104A]*
Driver Word:	*0707 [0707]*
Driver Type:	*NA*
Auto Start:	*None* *The operator selects this icon and issues a manual "REPEAT" command to repeat a step of the RDS sequencer or a manual "BYPASS" command to bypass a step of the RDS sequencer. Only some steps may be bypassed or repeated (see sequencer charts).*
Device:	***RSM-A [RSM-B] Station Repeat/Bypass Icon***
Advisor PC Tag:	*RSSTABPRP [RSSTBBPRP]*
CONR:	*C101A [C104A]*
Driver Word:	*0708 [0708]*
Driver Type:	*NA*
Auto Start:	*None* *The operator selects this icon and issues a manual "REPEAT" command to repeat a step of the RSM sequencer or a manual "BYPASS" command to bypass a step of the RSM sequencer. Only some steps may be bypassed or repeated (see sequencer charts).*

Table *D.5*. RHS PLC Automatic Control Sequences
Advisor PC Screen: **RLI**

Device: **Rocket Handling System Initialize Icon**
Advisor PC Tag: RHSYSINTA [RHSYSINTB]
CONR: C101A [C104A]
Driver Word: 0489 [0489]

The operator selects this icon and presses the 'START' key to begin initializing the system. The system will begin to initialize as long as plant air (DICO from ICS-CONR-105) is available. The system initialization will be complete when all of the following conditions are satisfied:

- RHS feed system is initialized
- RDS station is initialized
- RSM station is initialized

Note: A parallel relay "Power Loss Memory Rocket Demil Line A [Line B] Initialized" is latched to allow resumption of rocket processing without having to re-initialize the line following a loss of power to the RHS PLC. This relay is unlatched if any of the following conditions are satisfied:

- Manual system stop
- Campaign is not selected to rockets
- ECR explosion detected (ECR A or B)
- *(AN/PB/UM) RHS hopper fire is detected (ECR A or B)*
- *(TE line B only) DFS co-processing rockets and projos stop DICO is received from ICS-CONR-112.*

Device: **Rocket Handling System Run Icon**
Advisor PC Tag: RHSYSRUNA [RHSYSRUNB]
CONR: C101A [C104A]
Driver Word: 0490 [0490]

The operator selects this icon and presses the 'START' key to place the system in auto run. The System Auto Running relay will be latched when all of the following conditions are satisfied:

- RHS system is initialized or "Power Loss Memory Rocket Demil Line A [Line B] Initialized" is latched
- Campaign is selected to rockets
- Line A [Line B] ECR explosion not detected (03-XSH-127A [03-XSH-227A])
- Plant air is available (DICO from ICS-CONR-105)
- Instrument air is available (DICO from ICS-CONR-105)
- Hydraulic power for RSM/BSR/MIN is normal (DICO from ICS-CONR-105)
- Hydraulic power for MMS-GATE-101 [MMS-GATE-102] is normal (DICO from ICS-CONR-105)
- TOX OK to start processing (DICO from ICS-CONR-106)
- MMS-CNVM-103 [MMS-CNVM-104] (04-XS-198A/B [04-XS-298A/B] [04-XS-298A/B]) not pulled

Table *D.5*. RHS PLC Automatic Control Sequences
Advisor PC Screen: **RLI**

- CON E-Stops not active
- RSM E-Stop (03-XS-160 [03-XS-260]) not active
- *(UM only) PMD System ECR A [ECR B] E-Stop (03-XS-110 [03-XS-210]) not active (DICO from ICS-CONR-101B [ICS-CONR-104B])*
- HVAC normal (DICO from ICS-CONR-110)
- MMS-GATE-101 [MMS-GATE-102] (03-ZS-123B [03-ZS-223B]) closed
- MMS-GATE-103 [MMS-GATE-104] (03-ZS-131B [03-ZS-231B]) closed
- *(Not @ PB)* PHS-GATE-101 [PHS-GATE-102] (03-ZS-138B [03-ZS-238B]) closed
- *(Not @ PB)* PHS-GATE-103 [PHS-GATE-104] (03-ZS-153B [03-ZS-253B]) closed
- ECR Man doors closed/locked (DICO from ICS-CONR-105)
- DFS normal (DICO from ICS-CONR-112)
- Line B [Line A] ECR explosion not detected (DICO from ICS-CONR-104A [DICO from ICS-CONR-101A])
- Fire alarm detected in MDB not active (DICO from ICS-CONR-102)
- *(TE line B only) DFS co-processing rockets and projos stop DICO is received from ICS-CONR-112 OR PHS A system is not running in auto (DICO from ICS-CONR-101B) and DFS projos/hr equals zero is active.*

The System Auto Running relay will be unlatched when any of the following conditions are satisfied:

- Manual system stop
- Campaign is not selected to rockets
- ECR explosion detected (ECR A or B)
- *(AN/PB/UM) RHS hopper fire is detected (ECR A or B)*
- *(TE line B only) DFS co-processing rockets and projos stop DICO is received from ICS-CONR-112.*

Device: **Rocket Feed System Initialize Icon**
Advisor PC Tag: RHSFDINITA [RHSFDINTB]
CONR: C101A [C104A]
Driver Word: 0491 [0491]

The operator selects this icon and presses the ‘START’ key to begin initializing the feed system. The system will begin to initialize as long as the warning lights and horn system has been activated, the horn timer has expired*, and, at all sites except TOCDF, there are no feed alarms during initialization*. The system initialization will be complete when all of the following conditions are satisfied *(AN and UM also require that 20 seconds have elapsed since initialization began)*:

- MMS-CNVM-103 [MMS-CNVM-104] Conveyor #2 rocket stop is raised
- “Unknown Rocket in the Pocket” alarm is not active

Table *D.5*. RHS PLC Automatic Control Sequences
Advisor PC Screen: **RLI**

	• 02-ZS-151 [02-ZS-251] (Rocket in the Pocket) is not made • 02-ZS-169 [02-ZS-269] (Reject Rocket at Load Station) is not made • 02-ZS-189 [02-ZS-289] (Rocket at Indexer) is not made • "Reject Rocket in the Pocket" is not active • CON E-Stop is not active • "Rocket on the Way to the Drain Station" is not active • 02-ZS-160 [02-ZS-260] (Rocket on Input Conveyor #1) is not made • "Rocket on the Way to the Input Conveyor #2" is not active • 04-ZS-143 [04-ZS-243] (Rocket at Positive Stop) is not active • 04-ZS-141 [04-ZS-241] (Munition on Input Conveyor #2) is not active • *(Not @ UM)* 03-XS-160 [03-XS-260] (RHS-RSM-101 [RHS-RSM-102] E-Stop) is not active • Rocket Input Metering Machine Clutch is not engaged • RHS System is not Running in Auto • RHS System Park is not complete • *(AN/PB/UM only) No feed alarms during initialization*
Device:	**RHS-A [RHS-B] System Park Icon**
Advisor PC Tag:	RHSYSPRKA [RHSYSPRKB]
CONR:	C101A [C104A]
Driver Word:	0700 [0700]
Driver Type:	NA
Auto Start:	None
	The operator selects this icon and issues a manual start command to park the RDS and RSM
Device:	**RDS-A [RDS-B] Station Initialize Icon**
Advisor PC Tag:	RDSTAINIT [RDSTBINIT]
CONR:	C101A [C104A]
Driver Word:	0701 [0701]
Driver Type:	NA
Auto Start:	None
	The operator selects this icon and issues a manual start command to initialize the RDS.

D.2 RHS Sequencer Tables

Sequencers are used throughout chemical demilitarization facilities to perform sequenced machine control. A sequence is a series of steps that a machine performs to accomplish a task. One or more actions are required to perform each step. The step is complete when the desired results are met. Sequencers are used to control the RDS and RSS operations in the RHS. *The RSS sequencers at all sites are similar, so only a single sequencer table, ANCDF RSS Line A, is included for the RSS station. Because the RDS sequencers are different between TOCDF and the follow-on sites, two sets of RDS sequencer tables are included, ANCDF RDS Line A and TOCDF RDS Line B. The TOCDF Line B RDS tables are shown because it is the line on which TOCDF processed the majority of their rockets (See FAWB Note B-18).*

When a sequencer advances to a step, up to 32 bits of output control information are generated to produce a desired set of actions. The sequencer monitors up to 32 bits of status input data and remains at that step until all the desired results are met. Once a step is complete, the sequencer advances to the next step. This continues until the task that the sequencer controls is complete. When the task is complete, the sequencer resets itself back to the beginning (usually step 1.1).

The design of the CSDP PLC-3 sequencer uses five sets of data and two counters. The data sets are defined as follows:

1. Actual Input - Up to 32 discrete status indications can be defined for each sequencer. They can be inputs from the field (proximity switch, pressure switch, etc.) or internally generated relays (level indication > 17.0 inwc.). Once defined, these 32 bits have the same meaning for each step in the sequencer. For example, if bit 1 is defined as “Stop Clamp Retracted”, then that is the definition of bit 1 for all of the sequencer steps. On every scan of the PLC-3 application code, these 32 data points are packed into one contiguous area of memory to be compared to the Input Comparison data for the sequencer step.

2. Input Comparison - The Input Comparison data are stored in the PLC-3 memory, one 32-bit set for each step. For a sequencer step to be complete, the Actual Input data and the Input Comparison data must be equal when filtered through the Normal Mask data set for the step.

3. Normal Mask - The Normal Mask data are stored in the PLC-3 memory, one 32-bit set for each set. The Normal Mask is used during normal, vice bypass mode, operation. Not all Actual Input data are meaningful at every step of the sequence. The Normal Mask allows the sequencer to ignore the status of a particular input while testing for completion of a step. For example, at RDS sequencer step 2.2 “Extend Bottom Clamp”, we “don’t care” if the RSM is in a shear cycle. Therefore, bit 15 of word 2 of the normal mask for step 2.2 is a zero or “don’t care.” Now when the Actual

Input is moved through the Normal Mask, the result will be a zero for bit 15 so that when the result and the Input Comparison data are compared, step 2.2 can be completed whether bit 15 of word 2 is set or not.

4. Bypass Mask - The Bypass Mask works just like the Normal Mask except it is only used when the operator bypasses a sequencer step. For example, step 5.3 of the RDS sequencer is where the rocket is drained. To complete step 5.3 under normal conditions the AVS system must indicate that a good drain has occurred. If, after repeated drain attempts, the AVS system fails to) provide a good drain indication, the operator can bypass the step and force the sequencer to step 5.4. Not all steps can be bypassed. For bypass to be enabled, bit 14 of Output word 2 must be set for the step that is to be bypassed.

5. Output - The Output data are stored in the PLC-3 memory, one 32-bit set for each step. When a sequencer advances to a step, up to 32 bits of output control information are generated to produce a desired set of actions. This data is generally used in the logic that energizes the automatic action relays for the sequenced machine components. Bits 14-17 of Output word 2 have special functions as follows:

   14 - Bit 14 is set if the step can be bypassed.
   15 - Bit 15 is set if the step can be repeated.
   16 - Bit 16 is set if the step is the last Minor Step in the current Major Step.
   17 - Bit 17 is set if the step is the last step in the sequencer.

The sequencer step status is maintained by two counters. One counter is for the Major Step, the other is for the Minor Step. For example, step 7.2 is Major Step 7 and Minor Step 2. A Major Step reflects a complete task. A Minor Step is one of the tasks required to complete a Major Step. For example, RDS Major Step 7 will rotate the rocket. The Minor Steps to rotate the rocket are: 1) raise the lift table, 2) actuate the rotator, 3) lower the lift table, and 4) home the rotator. When a step is complete (i.e., Actual Inputs match the Input Comparisons) the Minor Step counter increments. If the step was the last Minor Step in the Major Step (Output word 2, bit 16 set), the Minor Step counter is reset to zero and the Major Step counter is incremented. If the step was the last Minor Step in the sequencer (Output word 2, bit 17), the Major Step counter is set to the initial step for the campaign (usually 1) and the Minor Step counter is set to 1.

Repeat. Some steps, such as RDS step 5.3 “rocket drain verification”, can be repeated. For these steps, Output word 2, bit 15 is set as a permissive. When the operator requests that a step be repeated, the Major Step is decremented and the Minor Step is reset to zero. In the case of the rocket drain, the sequencer would reset to step 4.0 to punch and drain the rocket a second time. The sequencer goes to manual when the repeat command is issued and must be returned to automatic to resume normal operation.

Manual Stepping. The operator can manually step through the sequencer. To do this the sequencer must be in manual. Once the machine status and the desired status are equal for a step, the operator can request a manual step. The sequencer will increment to the next step and issue new Output data and access new Input Comparison data.

Reset. The operator can reset the sequencer at any time. When the sequencer resets, the Major Step counter for the sequencer is set to the initial step for the campaign (usually 1). The Minor Step counter is reset to zero, the sequencer goes from automatic to manual, and the Input Comparison data for the initial step for the campaign becomes the desired status for completion of the step. Because the machine can be in any combination of states, the operator must take manual action to match the Actual Input data to the Input Comparison data using the View Sequencer display on the Advisor. Once the machine status and the desired status are equal, the operator can place the sequencer back into automatic and processing will resume starting with Minor Step 1 of the initial Major Step.

View Sequencer. The operator can determine the status of a sequencer step by accessing the View Sequencer information on the Advisor control screen for the sequencer. The View Sequencer feature displays the Actual Input data from the machine and the Input Comparison data for the sequencer step. Any mismatches are highlighted to provide the operator with immediate feedback as to what actions must be taken to complete the sequencer step.

Initialize. During initialization, the Major Step counter for the sequencer is set to the initial step for the campaign (usually 1). The Minor Step counter is reset to zero.

Park. During System Park, the sequencer is set to step 0.1. When the Actual Input data and the Input Comparison data are equal, the sequencer is reset to step 0.0.

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RDA File Name: RDS_101A.XLS Cntl - ANC101A C131 - Major Step Counter

Pointer Number: 11 Datatable Word (1 or 2) = **1** REV - 1A C132 - Minor Step Location

Rocket Drain Station **INPUT COMPARISON** File = B11 : 0 B1:1713 - Display Location

BITS / STEP	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:10 WORD ADRS	HEX VALUE	STEP DESCRIPTION
	17- ROTATOR HOME																		
		16- ROTATOR ACTUATED																	
			15- LIFT TABLE LOWERED																
				14- LIFT TABLE RAISED															
					13- VENT PUNCH RETRACTED														
						12- VENT PUNCH EXTENDED													
							11- FRONT PUNCH RETRACTED												
								10- FRONT PUNCH EXTENDED											
									07- REAR PUNCH RETRACTED										
										06- REAR PUNCH EXTENDED									
											05- BOTTOM CLAMP RETRACTED								
												04- BOTTOM CLAMP EXTENDED							
													03- VENT CLAMP RETRACTED						
														02- VENT CLAMP EXTENDED					
															01- STOP CLAMP RETRACTED				
																00- STOP CLAMP EXTENDED			
0.0	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	0	B11 :0	AAA4	RDS STATION PARKED AND OFF
0.1	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	0	B11 :1	AAA4	PARK RDS STATION
1.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :10	AAAA	INITIALIZE RDS STATION
1.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :11	AAAA	WAITING FOR FEED SYSTEM
1.2	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :12	AAAA	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :13	AAAA	RUN RDS CONVEYOR FORWARD
2.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :20	AAAA	STEP INITIALIZE (Engage Rocket)
2.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :21	AAAA	ROCKET AT PUNCH
2.2	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :22	AAAA	CLOSE BLAST GATE (WAIT HERE)
3.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :30	AAAA	STEP INITIALIZE (Extend Clamps)
3.1	1	0	1	0	1	0	1	0	1	0	0	1	1	0	1	0	B11 :31	AA9A	EXTEND BOTTOM CLAMP
3.2	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :32	AA95	EXTEND STOP AND VENT CLAMPS
3.3	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :33	AA95	STOP RDS CONVEYOR
4.0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :40	AA95	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	0	1	0	1	0	1	0	0	1	0	1	0	1	0	1	B11 :41	AA55	EXTEND REAR PUNCH/START AQS
4.2	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :42	AA95	RETRACT REAR PUNCH
4.3	1	0	1	0	0	1	1	0	1	0	0	1	0	1	0	1	B11 :43	A695	EXTEND VENT PUNCH
4.4	1	0	1	0	0	1	0	1	1	0	0	1	0	1	0	1	B11 :44	A595	EXTEND FRONT PUNCH
4.5	1	0	1	0	0	1	1	0	1	0	0	1	0	1	0	1	B11 :45	A695	RETRACT FRONT PUNCH
4.6	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :46	AA95	RETRACT VENT PUNCH
5.0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :50	AA95	STEP INITIALIZE (AQS in Progress)
5.1	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :51	AA95	DRAIN ROCKET
5.2	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :52	AA95	VERIFY AGENT DRAINED O.K.
5.3	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :53	AAAA	DRAIN AQS TANK
6.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :60	AAAA	STEP INITIALIZE (Retract Stops)
6.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :61	AAAA	RETRACT POSITVE STOP
7.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :70	AAAA	STEP INITIALIZE (Rotate Rocket)
7.1	1	0	0	1	1	0	1	0	1	0	1	0	1	0	1	0	B11 :71	9AAA	RAISE LIFT TABLE
7.2	0	1	0	1	1	0	1	0	1	0	1	0	1	0	1	0	B11 :72	5AAA	ROTATE ROCKET
7.3	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :73	6AAA	LOWER LIFT TABLE
7.4	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :74	AAAA	HOME ROTATOR
8.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :80	AAAA	STEP INITIALIZE (Rocket to RSM)
8.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :81	AAAA	START RSM STATION
8.2	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :82	AAAA	RUN RDS CONVEYOR FORWARD
8.3	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :83	AAAA	STOP RDS CONVEYOR
9.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :90	AAAA	STEP INITIALIZE (Ready for Next)
9.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :91	AAAA	EXTEND POSITVE STOP

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RDA File Name: RDS_101A.XLS Cntl - ANC101A C131 - Major Step Counter

Pointer Number: 11 Datatable Word (1 or 2) = **2** REV - 1A C132 - Minor Step Location

Rocket Drain Station **INPUT COMPARISON** File = B11 : 200 B1:1713 - Display Location

	17- ROCKET RATE WAIT	16- ROCKET TO TANK XFER TIMER DN	15- RSM IN SHEAR CYCLE	14- RSM READY TO RECEIVE	13- ROCKET IN RSM STATION	12- O.K. TO PUNCH FROM 106	11- AVS TANK WAS EMPTY LAST CHECK	10- RDS CONVEYOR RUNNING	07- ROCKET READY TO ENTER ECR	06- ROCKET AT RDS	05- AVS COMPLETE - GOOD DRAIN ???	04- O.K. TO PUMP FROM 106	03- BLAST GATE CLOSED	02- BLAST GATE OPEN	01- POSITIVE STOP LOWERED	00- POSITIVE STOP RAISED			
BITS	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**07**	**06**	**05**	**04**	**03**	**02**	**01**	**00**	**B10:11** WORD ADRS	**HEX VALUE**	**STEP DESCRIPTION**
STEP																			
0.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :200	0009	RDS STATION PARKED AND OFF
0.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :201	0009	PARK RDS STATION
1.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :210	0009	INITIALIZE RDS STATION
1.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	B11 :211	0089	WAITING FOR FEED SYSTEM
1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B11 :212	0005	OPEN BLST GATE & AQS TANK VAC VLV
1.3	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	B11 :213	0105	RUN RDS CONVEYOR FORWARD
2.0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	B11 :220	0105	STEP INITIALIZE (Engage Rocket)
2.1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	B11 :221	0145	ROCKET AT PUNCH
2.2	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	1	B11 :222	0149	CLOSE BLAST GATE (WAIT HERE)
3.0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	1	B11 :230	0149	STEP INITIALIZE (Extend Clamps)
3.1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	1	B11 :231	0149	EXTEND BOTTOM CLAMP
3.2	0	0	0	0	0	0	1	1	0	1	0	1	1	0	0	1	B11 :232	0359	EXTEND STOP AND VENT CLAMPS
3.3	1	0	0	0	0	0	1	0	0	1	0	1	1	0	0	1	B11 :233	8259	STOP RDS CONVEYOR
4.0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	B11 :240	0059	STEP INITIALIZE (Punch & Drain Rocket)
4.1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	B11 :241	0449	EXTEND REAR PUNCH/START AQS
4.2	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	B11 :242	0449	RETRACT REAR PUNCH
4.3	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	B11 :243	0449	EXTEND VENT PUNCH
4.4	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :244	0049	EXTEND FRONT PUNCH
4.5	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :245	0049	RETRACT FRONT PUNCH
4.6	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :246	0049	RETRACT VENT PUNCH
5.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :250	0049	STEP INITIALIZE (AQS in Progress)
5.1	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :251	4049	DRAIN ROCKET
5.2	0	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	B11 :252	4069	VERIFY AGENT DRAINED O.K.
5.3	0	1	0	0	0	0	1	0	0	1	0	0	1	0	0	1	B11 :253	4249	DRAIN AQS TANK
6.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :260	0049	STEP INITIALIZE (Retract Stops)
6.1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :261	004A	RETRACT POSITVE STOP
7.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :270	004A	STEP INITIALIZE (Rotate Rocket)
7.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	B11 :271	000A	RAISE LIFT TABLE
7.2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	B11 :272	000A	ROTATE ROCKET
7.3	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :273	004A	LOWER LIFT TABLE
7.4	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :274	004A	HOME ROTATOR
8.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :280	004A	STEP INITIALIZE (Rocket to RSM)
8.1	0	0	0	1	0	0	0	0	0	1	0	0	1	0	1	0	B11 :281	104A	START RSM STATION
8.2	0	0	0	0	1	0	0	1	0	0	0	0	1	0	1	0	B11 :282	090A	RUN RDS CONVEYOR FORWARD
8.3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	B11 :283	000A	STOP RDS CONVEYOR
9.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	B11 :290	000A	STEP INITIALIZE (Ready for Next)
9.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :291	0009	EXTEND POSITVE STOP

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RDA File Name: RDS_101A.XLS Cntl - ANC101A C131 - Major Step Counter

Pointer Number: 12 Datatable Word (1 or 2) = **1** REV - 1A C132 - Minor Step Location

Rocket Drain Station **NORMAL MASK** File = B11 : 400 B1:1713 - Display Location

	17- ROTATOR HOME	16- ROTATOR ACTUATED	15- LIFT TABLE LOWERED	14- LIFT TABLE RAISED	13- VENT PUNCH RETRACTED	12- VENT PUNCH EXTENDED	11- FRONT PUNCH RETRACTED	10- FRONT PUNCH EXTENDED	07- REAR PUNCH RETRACTED	06- REAR PUNCH EXTENDED	05- BOTTOM CLAMP RETRACTED	04- BOTTOM CLAMP EXTENDED	03- VENT CLAMP RETRACTED	02- VENT CLAMP EXTENDED	01- STOP CLAMP RETRACTED	00- STOP CLAMP EXTENDED			
BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:12		
STEP																	WORD ADRS	HEX VALUE	STEP DESCRIPTION
0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	B11 :400	FFFE	RDS STATION PARKED AND OFF
0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	B11 :401	FFFE	PARK RDS STATION
1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :410	FFFF	INITIALIZE RDS STATION
1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :411	FFFF	WAITING FOR FEED SYSTEM
1.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :412	FFFF	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :413	FFFF	RUN RDS CONVEYOR FORWARD
2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :420	FFFF	STEP INITIALIZE (Engage Rocket)
2.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :421	FFFF	ROCKET AT PUNCH
2.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :422	FFFF	CLOSE BLAST GATE (WAIT HERE)
3.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :430	FFFF	STEP INITIALIZE (Extend Clamps)
3.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :431	FFFF	EXTEND BOTTOM CLAMP
3.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :432	FFFF	EXTEND STOP AND VENT CLAMPS
3.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :433	FFFF	STOP RDS CONVEYOR
4.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :440	FFFF	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :441	FFFF	EXTEND REAR PUNCH/START AQS
4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :442	FFFF	RETRACT REAR PUNCH
4.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :443	FFFF	EXTEND VENT PUNCH
4.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :444	FFFF	EXTEND FRONT PUNCH
4.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :445	FFFF	RETRACT FRONT PUNCH
4.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :446	FFFF	RETRACT VENT PUNCH
5.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :450	FFFF	STEP INITIALIZE (AQS in Progress)
5.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :451	FFFF	DRAIN ROCKET
5.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :452	FFFF	VERIFY AGENT DRAINED O.K.
5.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :453	FFFF	DRAIN AQS TANK
6.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :460	FFFF	STEP INITIALIZE (Retract Stops)
6.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :461	FFFF	RETRACT POSITVE STOP
7.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :470	FFFF	STEP INITIALIZE (Rotate Rocket)
7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :471	FFFF	RAISE LIFT TABLE
7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :472	FFFF	ROTATE ROCKET
7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :473	FFFF	LOWER LIFT TABLE
7.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :474	FFFF	HOME ROTATOR
8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :480	FFFF	STEP INITIALIZE (Rocket to RSM)
8.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :481	FFFF	START RSM STATION
8.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :482	FFFF	RUN RDS CONVEYOR FORWARD
8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :483	FFFF	STOP RDS CONVEYOR
9.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :490	FFFF	STEP INITIALIZE (Ready for Next)
9.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :491	FFFF	EXTEND POSITVE STOP

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RDA File Name: RDS_101A.XLS Cntl - ANC101A C131 - Major Step Counter

Pointer Number: 12 Datatable Word (1 or 2) = **2** REV - 1A C132 - Minor Step Location

Rocket Drain Station **NORMAL MASK** File = B11 : 600 B1:1713 - Display Location

17- ROCKET RATE WAIT
16- ROCKET TO TANK XFER TIMER DN
15- RSM IN SHEAR CYCLE
14- RSM READY TO RECEIVE
13- ROCKET IN RSM STATION
12- O.K. TO PUNCH FROM 106
11- AVS TANK WAS EMPTY LAST CHECK
10- RDS CONVEYOR RUNNING
07- ROCKET READY TO ENTER ECR
06- ROCKET AT RDS
05- AVS COMPLETE - GOOD DRAIN ???
04- O.K. TO PUMP FROM 106
03- BLAST GATE CLOSED
02- BLAST GATE OPEN
01- POSITIVE STOP LOWERED
00- POSITIVE STOP RAISED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:13 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
0.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :600	014F	RDS STATION PARKED AND OFF
0.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :601	014F	PARK RDS STATION
1.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :610	014F	INITIALIZE RDS STATION
1.1	0	0	1	0	0	0	0	1	1	1	0	0	1	1	1	1	B11 :611	21CF	WAITING FOR FEED SYSTEM
1.2	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :612	010F	OPEN BLST GATE & AQS TANK VAC VLV
1.3	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :613	010F	RUN RDS CONVEYOR FORWARD
2.0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :620	010F	STEP INITIALIZE (Engage Rocket)
2.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :621	014F	ROCKET AT PUNCH
2.2	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :622	014F	CLOSE BLAST GATE (WAIT HERE)
3.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :630	014F	STEP INITIALIZE (Extend Clamps)
3.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :631	014F	EXTEND BOTTOM CLAMP
3.2	0	0	0	0	0	0	1	1	0	1	0	1	1	1	1	1	B11 :632	035F	EXTEND STOP AND VENT CLAMPS
3.3	1	0	0	0	0	0	1	1	0	1	0	1	1	1	1	1	B11 :633	835F	STOP RDS CONVEYOR
4.0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1	1	B11 :640	015F	STEP INITIALIZE (Punch & Drain Rocket)
4.1	0	0	0	0	0	1	0	1	0	1	0	0	1	1	1	1	B11 :641	054F	EXTEND REAR PUNCH/START AQS
4.2	0	0	0	0	0	1	0	1	0	1	0	0	1	1	1	1	B11 :642	054F	RETRACT REAR PUNCH
4.3	0	0	0	0	0	1	0	1	0	1	0	0	1	1	1	1	B11 :643	054F	EXTEND VENT PUNCH
4.4	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :644	014F	EXTEND FRONT PUNCH
4.5	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :645	014F	RETRACT FRONT PUNCH
4.6	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :646	014F	RETRACT VENT PUNCH
5.0	1	1	0	0	0	0	0	1	0	1	1	0	1	1	1	1	B11 :650	C16F	STEP INITIALIZE (AQS in Progress)
5.1	1	1	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :651	C14F	DRAIN ROCKET
5.2	1	1	0	0	0	0	0	1	0	1	1	0	1	1	1	1	B11 :652	C16F	VERIFY AGENT DRAINED O.K.
5.3	1	1	0	0	0	0	1	1	0	1	0	0	1	1	1	1	B11 :653	C34F	DRAIN AQS TANK
6.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :660	014F	STEP INITIALIZE (Retract Stops)
6.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :661	014F	RETRACT POSITVE STOP
7.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :670	014F	STEP INITIALIZE (Rotate Rocket)
7.1	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :671	010F	RAISE LIFT TABLE
7.2	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :672	010F	ROTATE ROCKET
7.3	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :673	014F	LOWER LIFT TABLE
7.4	0	0	1	0	1	0	0	1	0	1	0	0	1	1	1	1	B11 :674	294F	HOME ROTATOR
8.0	0	0	1	0	1	0	0	1	0	1	0	0	1	1	1	1	B11 :680	294F	STEP INITIALIZE (Rocket to RSM)
8.1	0	0	1	1	1	0	0	1	0	1	0	0	1	1	1	1	B11 :681	394F	START RSM STATION
8.2	0	0	0	0	1	0	0	1	0	1	0	0	1	1	1	1	B11 :682	094F	RUN RDS CONVEYOR FORWARD
8.3	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :683	014F	STOP RDS CONVEYOR
9.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :690	014F	STEP INITIALIZE (Ready for Next)
9.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :691	014F	EXTEND POSITVE STOP

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RDA File Name: RDS_101A.XLS Cntl - ANC101A C131 - Major Step Counter

Pointer Number: 13 Datatable Word (1 or 2) = **1** REV - 1A C132 - Minor Step Location

Rocket Drain Station **BYPASS MASK** File = B11 : 800 B1:1713 - Display Location

	17- ROTATOR HOME	16- ROTATOR ACTUATED	15- LIFT TABLE LOWERED	14- LIFT TABLE RAISED	13- VENT PUNCH RETRACTED	12- VENT PUNCH EXTENDED	11- FRONT PUNCH RETRACTED	10- FRONT PUNCH EXTENDED	07- REAR PUNCH RETRACTED	06- REAR PUNCH EXTENDED	05- BOTTOM CLAMP RETRACTED	04- BOTTOM CLAMP EXTENDED	03- VENT CLAMP RETRACTED	02- VENT CLAMP EXTENDED	01- STOP CLAMP RETRACTED	00- STOP CLAMP EXTENDED			
BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:12		
STEP																	WORD ADRS	HEX VALUE	STEP DESCRIPTION
0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :800	FFFF	RDS STATION PARKED AND OFF
0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :801	FFFF	PARK RDS STATION
1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :810	FFFF	INITIALIZE RDS STATION
1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :811	FFFF	WAITING FOR FEED SYSTEM
1.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :812	FFFF	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :813	FFFF	RUN RDS CONVEYOR FORWARD
2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :820	FFFF	STEP INITIALIZE (Engage Rocket)
2.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :821	FFFF	ROCKET AT PUNCH
2.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :822	FFFF	CLOSE BLAST GATE (WAIT HERE)
3.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :830	FFFF	STEP INITIALIZE (Extend Clamps)
3.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :831	FFFF	EXTEND BOTTOM CLAMP
3.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :832	FFFF	EXTEND STOP AND VENT CLAMPS
3.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :833	FFFF	STOP RDS CONVEYOR
4.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :840	FFFF	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :841	FFFF	EXTEND REAR PUNCH/START AQS
4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :842	FFFF	RETRACT REAR PUNCH
4.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :843	FFFF	EXTEND VENT PUNCH
4.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :844	FFFF	EXTEND FRONT PUNCH
4.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :845	FFFF	RETRACT FRONT PUNCH
4.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :846	FFFF	RETRACT VENT PUNCH
5.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :850	FFFF	STEP INITIALIZE (AQS in Progress)
5.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :851	FFFF	DRAIN ROCKET
5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :852	0000	VERIFY AGENT DRAINED O.K.
5.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :853	FFFF	DRAIN AQS TANK
6.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :860	FFFF	STEP INITIALIZE (Retract Stops)
6.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :861	FFFF	RETRACT POSITVE STOP
7.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :870	FFFF	STEP INITIALIZE (Rotate Rocket)
7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :871	FFFF	RAISE LIFT TABLE
7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :872	FFFF	ROTATE ROCKET
7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :873	FFFF	LOWER LIFT TABLE
7.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :874	FFFF	HOME ROTATOR
8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :880	FFFF	STEP INITIALIZE (Rocket to RSM)
8.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :881	FFFF	START RSM STATION
8.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :882	FFFF	RUN RDS CONVEYOR FORWARD
8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :883	FFFF	STOP RDS CONVEYOR
9.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :890	FFFF	STEP INITIALIZE (Ready for Next)
9.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :891	FFFF	EXTEND POSITVE STOP

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RDA File Name: RDS_101A.XLS Cntl - ANC101A C131 - Major Step Counter

Pointer Number: 13 Datatable Word (1 or 2) = **2** REV - 1A C132 - Minor Step Location

Rocket Drain Station **BYPASS MASK** File = B11 : 1000 B1:1713 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:13 WORD ADDR	HEX VALUE	STEP DESCRIPTION
STEP	17- ROCKET RATE WAIT	16- ROCKET TO TANK XFER TIMER DN	15- RSM IN SHEAR CYCLE	14- RSM READY TO RECEIVE	13- ROCKET IN RSM STATION	12- O.K. TO PUNCH FROM 106	11- AVS TANK WAS EMPTY LAST CHECK	10- RDS CONVEYOR RUNNING	07- ROCKET READY TO ENTER ECR	06- ROCKET AT RDS	05- AVS COMPLETE - GOOD DRAIN ???	04- O.K. TO PUMP FROM 106	03- BLAST GATE CLOSED	02- BLAST GATE OPEN	01- POSITIVE STOP LOWERED	00- POSITIVE STOP RAISED			
0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1000	FFFF	RDS STATION PARKED AND OFF
0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1001	FFFF	PARK RDS STATION
1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1010	FFFF	INITIALIZE RDS STATION
1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1011	FFFF	WAITING FOR FEED SYSTEM
1.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1012	FFFF	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1013	FFFF	RUN RDS CONVEYOR FORWARD
2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1020	FFFF	STEP INITIALIZE (Engage Rocket)
2.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1021	FFFF	ROCKET AT PUNCH
2.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1022	FFFF	CLOSE BLAST GATE (WAIT HERE)
3.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1030	FFFF	STEP INITIALIZE (Extend Clamps)
3.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1031	FFFF	EXTEND BOTTOM CLAMP
3.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1032	FFFF	EXTEND STOP AND VENT CLAMPS
3.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1033	FFFF	STOP RDS CONVEYOR
4.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1040	FFFF	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1041	FFFF	EXTEND REAR PUNCH/START AQS
4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1042	FFFF	RETRACT REAR PUNCH
4.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1043	FFFF	EXTEND VENT PUNCH
4.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1044	FFFF	EXTEND FRONT PUNCH
4.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1045	FFFF	RETRACT FRONT PUNCH
4.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1046	FFFF	RETRACT VENT PUNCH
5.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1050	FFFF	STEP INITIALIZE (AQS in Progress)
5.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1051	FFFF	DRAIN ROCKET
5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :1052	0000	VERIFY AGENT DRAINED O.K.
5.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1053	FFFF	DRAIN AQS TANK
6.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1060	FFFF	STEP INITIALIZE (Retract Stops)
6.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1061	FFFF	RETRACT POSITVE STOP
7.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1070	FFFF	STEP INITIALIZE (Rotate Rocket)
7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1071	FFFF	RAISE LIFT TABLE
7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1072	FFFF	ROTATE ROCKET
7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1073	FFFF	LOWER LIFT TABLE
7.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1074	FFFF	HOME ROTATOR
8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1080	FFFF	STEP INITIALIZE (Rocket to RSM)
8.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1081	FFFF	START RSM STATION
8.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1082	FFFF	RUN RDS CONVEYOR FORWARD
8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1083	FFFF	STOP RDS CONVEYOR
9.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1090	FFFF	STEP INITIALIZE (Ready for Next)
9.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1091	FFFF	EXTEND POSITVE STOP

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RDA File Name: RDS_101A.XLS Cntl - ANC101A C131 - Major Step Counter

Pointer Number: 15 Datatable Word (1 or 2) = **1** REV - 1A C132 - Minor Step Location

Rocket Drain Station **OUTPUT** File = B11 : 1600 B1:1713 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:18 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- LIFT TABLE LOWER	16- LIFT TABLE RAISE	15- VENT PUNCH RETRACT	14- VENT PUNCH EXTEND	13- FRONT PUNCH RETRACT	12- FRONT PUNCH EXTEND	11- REAR PUNCH RETRACT	10- REAR PUNCH EXTEND	07- BOTTOM CLAMP RETRACT	06- BOTTOM CLAMP EXTEND	05- AQS TANK LEVEL ISOLATION VALVE	04- SPARE	03- STOP AND VENT CLAMP RETRACT	02- STOP AND VENT CLAMP EXTEND	01- RDS CONVEYOR REVERSE	00- RDS CONVEYOR FORWARD			
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :1600	0000	RDS STATION PARKED AND OFF
0.1	1	0	1	0	1	0	1	0	1	0	0	0	0	1	0	0	B11 :1601	AA84	PARK RDS STATION
1.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1610	AA88	INITIALIZE RDS STATION
1.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1611	AA88	WAITING FOR FEED SYSTEM
1.2	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1612	AA88	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1613	AA89	RUN RDS CONVEYOR FORWARD
2.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1620	AA89	STEP INITIALIZE (Engage Rocket)
2.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1621	AA89	ROCKET AT PUNCH
2.2	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1622	AA89	CLOSE BLAST GATE (WAIT HERE)
3.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1630	AA89	STEP INITIALIZE (Extend Clamps)
3.1	1	0	1	0	1	0	1	0	0	1	0	0	1	0	0	1	B11 :1631	AA49	EXTEND BOTTOM CLAMP
3.2	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	1	B11 :1632	AA45	EXTEND STOP AND VENT CLAMPS
3.3	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1633	AA44	STOP RDS CONVEYOR
4.0	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1640	AA44	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	0	1	0	1	0	0	1	0	1	0	0	0	1	0	0	B11 :1641	A944	EXTEND REAR PUNCH/START AQS
4.2	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1642	AA44	RETRACT REAR PUNCH
4.3	1	0	0	1	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1643	9A44	EXTEND VENT PUNCH
4.4	1	0	0	1	0	1	1	0	0	1	0	0	0	1	0	0	B11 :1644	9644	EXTEND FRONT PUNCH
4.5	1	0	0	1	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1645	9A44	RETRACT FRONT PUNCH
4.6	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1646	AA44	RETRACT VENT PUNCH
5.0	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1650	AA44	STEP INITIALIZE (AQS in Progress)
5.1	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1651	AA44	DRAIN ROCKET
5.2	1	0	1	0	1	0	1	0	0	1	1	0	0	1	0	0	B11 :1652	AA64	VERIFY AGENT DRAINED O.K.
5.3	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1653	AA88	DRAIN AQS TANK
6.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1660	AA88	STEP INITIALIZE (Retract Stops)
6.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1661	AA88	RETRACT POSITVE STOP
7.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1670	AA88	STEP INITIALIZE (Rotate Rocket)
7.1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1671	6A88	RAISE LIFT TABLE
7.2	0	1	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1672	6A88	ROTATE ROCKET
7.3	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1673	AA88	LOWER LIFT TABLE
7.4	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1674	AA88	HOME ROTATOR
8.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1680	AA88	STEP INITIALIZE (Rocket to RSM)
8.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1681	AA88	START RSM STATION
8.2	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1682	AA89	RUN RDS CONVEYOR FORWARD
8.3	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1683	AA88	STOP RDS CONVEYOR
9.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1690	AA88	STEP INITIALIZE (Ready for Next)
9.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1691	AA88	EXTEND POSITVE STOP

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RDA File Name: RDS_101A.XLS Cntl - ANC101A C131 - Major Step Counter

Pointer Number: 15 Datatable Word (1 or 2) = **2** REV - 1A C132 - Minor Step Location

Rocket Drain Station **OUTPUT** File = B11 : 1800 B1:1713 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:19 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- LAST SEQUENCER STEP	16- LAST SUB STEP	15- O.K. TO REPEAT STEP	14- O.K. TO BYPASS	13- STRAINER VACUUM VALVE	12- STRAINER DRAIN VALVE	11- START AQS TANK DRAIN	10- AQS TANK VACUUM VALVE	07- AGENT DRAINING TO START	06- RSM START	05- BLAST GATE CLOSE	04- BLAST GATE OPEN	03- POSITIVE STOP LOWER	02- POSITIVE STOP RAISE	01- ROTATOR HOME	00- ROTATOR ACTUATE			
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :1800	0000	RDS STATION PARKED AND OFF
0.1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1801	4026	PARK RDS STATION
1.0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1810	0026	INITIALIZE RDS STATION
1.1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1811	0026	WAITING FOR FEED SYSTEM
1.2	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1812	0116	OPEN BLST GATE & AQS TANK VAC VLV
1.3	0	1	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1813	4116	RUN RDS CONVEYOR FORWARD
2.0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1820	0116	STEP INITIALIZE (Engage Rocket)
2.1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1821	0116	ROCKET AT PUNCH
2.2	0	1	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1822	4126	CLOSE BLAST GATE (WAIT HERE)
3.0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1830	0126	STEP INITIALIZE (Extend Clamps)
3.1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1831	0126	EXTEND BOTTOM CLAMP
3.2	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1832	0126	EXTEND STOP AND VENT CLAMPS
3.3	0	1	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1833	4126	STOP RDS CONVEYOR
4.0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1840	0126	STEP INITIALIZE (Punch & Drain Rocket)
4.1	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	B11 :1841	0526	EXTEND REAR PUNCH/START AQS
4.2	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	B11 :1842	0526	RETRACT REAR PUNCH
4.3	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	B11 :1843	0526	EXTEND VENT PUNCH
4.4	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	B11 :1844	0526	EXTEND FRONT PUNCH
4.5	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	B11 :1845	0526	RETRACT FRONT PUNCH
4.6	0	1	1	0	0	1	0	1	1	0	1	0	0	1	1	0	B11 :1846	65A6	RETRACT VENT PUNCH
5.0	0	0	0	0	0	1	0	1	1	0	1	0	0	1	1	0	B11 :1850	05A6	STEP INITIALIZE (AQS in Progress)
5.1	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	B11 :1851	0526	DRAIN ROCKET
5.2	0	0	1	1	0	1	0	0	0	0	1	0	0	1	1	0	B11 :1852	3426	VERIFY AGENT DRAINED O.K.
5.3	0	1	0	0	0	1	1	0	0	0	1	0	0	1	1	0	B11 :1853	4626	DRAIN AQS TANK
6.0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1860	0026	STEP INITIALIZE (Retract Stops)
6.1	0	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1861	402A	RETRACT POSITVE STOP
7.0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1870	002A	STEP INITIALIZE (Rotate Rocket)
7.1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1871	002A	RAISE LIFT TABLE
7.2	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	B11 :1872	0029	ROTATE ROCKET
7.3	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	B11 :1873	0029	LOWER LIFT TABLE
7.4	0	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1874	402A	HOME ROTATOR
8.0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1880	002A	STEP INITIALIZE (Rocket to RSM)
8.1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	B11 :1881	006A	START RSM STATION
8.2	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	B11 :1882	006A	RUN RDS CONVEYOR FORWARD
8.3	0	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1883	402A	STOP RDS CONVEYOR
9.0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1890	002A	STEP INITIALIZE (Ready for Next)
9.1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1891	8026	EXTEND POSITVE STOP

Programmatic Process FAWB - TOCDF Line B — January-7-04

Rocket System File Name: RKTRDS.XLS Cntl - TOC101A & TOC104A C131 - Major Step Counter

Pointer Number: 11 Datatable Word (1 or 2) = **1** REV - 6A C132 - Minor Step Location

Rocket Drain Station **INPUT COMPARISON** File = B11 : 0 B1:713 - Display Location

	17- ROTATOR HOME	16- ROTATOR ACTUATED	15- LIFT TABLE LOWERED	14- LIFT TABLE RAISED	13- VENT PUNCH RETRACTED	12- VENT PUNCH EXTENDED	11- FRONT PUNCH RETRACTED	10- FRONT PUNCH EXTENDED	07- REAR PUNCH RETRACTED	06- REAR PUNCH EXTENDED	05- BOTTOM CLAMP RETRACTED	04- BOTTOM CLAMP EXTENDED	03- VENT CLAMP RETRACTED	02- VENT CLAMP EXTENDED	01- STOP CLAMP RETRACTED	00- STOP CLAMP EXTENDED			
BITS	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**07**	**06**	**05**	**04**	**03**	**02**	**01**	**00**	**B10:10**	**HEX VALUE**	**STEP DESCRIPTION**
STEP																	WORD ADRS		
0.0	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	0	B11 :0	AAA4	RDS STATION PARKED AND OFF
0.1	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	0	B11 :1	AAA4	PARK RDS STATION
1.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :10	AAAA	INITIALIZE RDS STATION
1.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :11	AAAA	WAITING FOR FEED SYSTEM
1.2	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :12	AAAA	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :13	AAAA	RUN RDS CONVEYOR FORWARD
2.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :20	AAAA	STEP INITIALIZE (Engage Rocket)
2.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :21	AAAA	ROCKET AT PUNCH
2.2	1	0	1	0	1	0	1	0	1	0	0	1	1	0	1	0	B11 :22	AA9A	EXTEND BOTTOM CLAMP
2.3	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :23	AA95	EXTEND STOP AND VENT CLAMPS
3.0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :30	AA95	STEP INITIALIZE (Close Blastgate)
3.1	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :31	AA95	STOP RDS CONVEYOR
3.2	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :32	AA95	CLOSE BLAST GATE
4.0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :40	AA95	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	0	1	0	1	0	1	0	0	1	0	1	0	1	0	1	B11 :41	AA55	EXTEND REAR PUNCH/START AQS
4.2	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :42	AA95	RETRACT REAR PUNCH
4.3	1	0	1	0	0	1	1	0	1	0	0	1	0	1	0	1	B11 :43	A695	EXTEND VENT PUNCH
4.4	1	0	1	0	0	1	0	1	1	0	0	1	0	1	0	1	B11 :44	A595	EXTEND FRONT PUNCH
4.5	1	0	1	0	0	1	1	0	1	0	0	1	0	1	0	1	B11 :45	A695	RETRACT FRONT PUNCH
4.6	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :46	AA95	RETRACT VENT PUNCH
5.0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :50	AA95	STEP INITIALIZE (AQS in Progress)
5.1	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :51	AA95	OPEN STRAINER VAC VLV
5.2	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :52	AA95	CLOSE STRAINER VACUUM VALVE & OPEN STRAINER DRAIN VALVE
5.3	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	B11 :53	AA95	CLOSE AQS TANK VAC VLV
5.4	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :54	AAAA	VERIFY AGENT DRAINED O.K.
6.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :60	AAAA	STEP INITIALIZE (Retract Stops)
6.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :61	AAAA	RETRACT POSITVE STOP
7.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :70	AAAA	STEP INITIALIZE (Rotate Rocket)
7.1	1	0	0	1	1	0	1	0	1	0	1	0	1	0	1	0	B11 :71	9AAA	RAISE LIFT TABLE
7.2	0	1	0	1	1	0	1	0	1	0	1	0	1	0	1	0	B11 :72	5AAA	ROTATE ROCKET
7.3	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :73	6AAA	LOWER LIFT TABLE
7.4	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :74	AAAA	HOME ROTATOR
8.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :80	AAAA	STEP INITIALIZE (Rocket to RSM)
8.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :81	AAAA	START RSM STATION
8.2	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :82	AAAA	RUN RDS CONVEYOR FORWARD
8.3	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :83	AAAA	STOP RDS CONVEYOR
9.0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :90	AAAA	STEP INITIALIZE (Ready for Next)
9.1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	B11 :91	AAAA	EXTEND POSITVE STOP

Programmatic Process FAWB - TOCDF Line B — January-7-04

Rocket System File Name: RKTRDS.XLS Cntl - TOC101A & TOC104A C131 - Major Step Counter

Pointer Number: 11 Datatable Word (1 or 2) = **2** REV - 6A C132 - Minor Step Location

Rocket Drain Station **INPUT COMPARISON** File = B11 : 200 B1:713 - Display Location

17- AGENT TO AQS TANK XFER TIMER DN
16- ROCKET TO FILTER XFER TIMER DN
15- RSM IN SHEAR CYCLE
14- RSM READY TO RECEIVE
13- ROCKET IN RSM STATION
12- SPARE
11- AVS TANK WAS EMPTY LAST CHECK
10- RDS CONVEYOR RUNNING
07- ROCKET READY TO ENTER ECR
06- ROCKET AT RDS
05- AVS COMPLETE - GOOD DRAIN ???
04- O.K. TO PUNCH
03- BLAST GATE CLOSED
02- BLAST GATE OPEN
01- POSITIVE STOP LOWERED
00- POSITIVE STOP RAISED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:11 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
0.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :200	0009	RDS STATION PARKED AND OFF
0.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :201	0009	PARK RDS STATION
1.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :210	0009	INITIALIZE RDS STATION
1.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	B11 :211	0089	WAITING FOR FEED SYSTEM
1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B11 :212	0005	OPEN BLST GATE & AQS TANK VAC VLV
1.3	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	B11 :213	0105	RUN RDS CONVEYOR FORWARD
2.0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	B11 :220	0105	STEP INITIALIZE (Engage Rocket)
2.1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	B11 :221	0145	ROCKET AT PUNCH
2.2	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	B11 :222	0145	EXTEND BOTTOM CLAMP
2.3	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	B11 :223	0145	EXTEND STOP AND VENT CLAMPS
3.0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	B11 :230	0145	STEP INITIALIZE (Close Blastgate)
3.1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	B11 :231	0045	STOP RDS CONVEYOR
3.2	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	1	B11 :232	0259	CLOSE BLAST GATE
4.0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	B11 :240	0059	STEP INITIALIZE (Punch & Drain Rocket)
4.1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :241	0049	EXTEND REAR PUNCH/START AQS
4.2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :242	0049	RETRACT REAR PUNCH
4.3	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :243	0049	EXTEND VENT PUNCH
4.4	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :244	0049	EXTEND FRONT PUNCH
4.5	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :245	0049	RETRACT FRONT PUNCH
4.6	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :246	0049	RETRACT VENT PUNCH
5.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :250	0049	STEP INITIALIZE (AQS in Progress)
5.1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :251	8049	OPEN STRAINER VAC VLV
5.2	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :252	C049	CLOSE STRAINER VACUUM VALVE & OPEN STRAINER DRAIN VALVE
5.3	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	B11 :253	C069	CLOSE AQS TANK VAC VLV
5.4	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :254	C049	VERIFY AGENT DRAINED O.K.
6.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B11 :260	0049	STEP INITIALIZE (Retract Stops)
6.1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :261	004A	RETRACT POSITVE STOP
7.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :270	004A	STEP INITIALIZE (Rotate Rocket)
7.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	B11 :271	000A	RAISE LIFT TABLE
7.2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	B11 :272	000A	ROTATE ROCKET
7.3	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :273	004A	LOWER LIFT TABLE
7.4	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :274	004A	HOME ROTATOR
8.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	B11 :280	004A	STEP INITIALIZE (Rocket to RSM)
8.1	0	0	0	1	0	0	0	0	0	1	0	0	1	0	1	0	B11 :281	104A	START RSM STATION
8.2	0	0	0	0	1	0	0	1	0	0	0	0	1	0	1	0	B11 :282	090A	RUN RDS CONVEYOR FORWARD
8.3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	B11 :283	000A	STOP RDS CONVEYOR
9.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :290	0009	STEP INITIALIZE (Ready for Next)
9.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B11 :291	0009	EXTEND POSITVE STOP

Programmatic Process FAWB - TOCDF Line B — January-7-04

Rocket System File Name: RKTRDS.XLS Cntl - TOC101A & TOC104A C131 - Major Step Counter
Pointer Number: 12 Datatable Word (1 or 2) = **1** REV - 6A C132 - Minor Step Location
Rocket Drain Station **NORMAL MASK** File = B11 : 400 B1:713 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:10 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- ROTATOR HOME	16- ROTATOR ACTUATED	15- LIFT TABLE LOWERED	14- LIFT TABLE RAISED	13- VENT PUNCH RETRACTED	12- VENT PUNCH EXTENDED	11- FRONT PUNCH RETRACTED	10- FRONT PUNCH EXTENDED	07- REAR PUNCH RETRACTED	06- REAR PUNCH EXTENDED	05- BOTTOM CLAMP RETRACTED	04- BOTTOM CLAMP EXTENDED	03- VENT CLAMP RETRACTED	02- VENT CLAMP EXTENDED	01- STOP CLAMP RETRACTED	00- STOP CLAMP EXTENDED			
0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	B11 :400	FFFE	RDS STATION PARKED AND OFF
0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	B11 :401	FFFE	PARK RDS STATION
1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :410	FFFF	INITIALIZE RDS STATION
1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :411	FFFF	WAITING FOR FEED SYSTEM
1.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :412	FFFF	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :413	FFFF	RUN RDS CONVEYOR FORWARD
2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :420	FFFF	STEP INITIALIZE (Engage Rocket)
2.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :421	FFFF	ROCKET AT PUNCH
2.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :422	FFFF	EXTEND BOTTOM CLAMP
2.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :423	FFFF	EXTEND STOP AND VENT CLAMPS
3.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :430	FFFF	STEP INITIALIZE (Close Blastgate)
3.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :431	FFFF	STOP RDS CONVEYOR
3.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :432	FFFF	CLOSE BLAST GATE
4.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :440	FFFF	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :441	FFFF	EXTEND REAR PUNCH/START AQS
4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :442	FFFF	RETRACT REAR PUNCH
4.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :443	FFFF	EXTEND VENT PUNCH
4.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :444	FFFF	EXTEND FRONT PUNCH
4.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :445	FFFF	RETRACT FRONT PUNCH
4.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :446	FFFF	RETRACT VENT PUNCH
5.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :450	FFFF	STEP INITIALIZE (AQS in Progress)
5.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :451	FFFF	OPEN STRAINER VAC VLV
5.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :452	FFFF	CLOSE STRAINER VACUUM VALVE & OPEN STRAINER DRAIN VALVE
5.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :453	FFFF	CLOSE AQS TANK VAC VLV
5.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :454	FFFF	VERIFY AGENT DRAINED O.K.
6.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :460	FFFF	STEP INITIALIZE (Retract Stops)
6.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :461	FFFF	RETRACT POSITVE STOP
7.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :470	FFFF	STEP INITIALIZE (Rotate Rocket)
7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :471	FFFF	RAISE LIFT TABLE
7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :472	FFFF	ROTATE ROCKET
7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :473	FFFF	LOWER LIFT TABLE
7.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :474	FFFF	HOME ROTATOR
8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :480	FFFF	STEP INITIALIZE (Rocket to RSM)
8.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :481	FFFF	START RSM STATION
8.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :482	FFFF	RUN RDS CONVEYOR FORWARD
8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :483	FFFF	STOP RDS CONVEYOR
9.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :490	FFFF	STEP INITIALIZE (Ready for Next)
9.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :491	FFFF	EXTEND POSITVE STOP

Programmatic Process FAWB - TOCDF Line B — January-7-04

Rocket System File Name: RKTRDS.XLS Cntl - TOC101A & TOC104A C131 - Major Step Counter
Pointer Number: 12 Datatable Word (1 or 2) = **2** REV - 6A C132 - Minor Step Location
Rocket Drain Station **NORMAL MASK** File = B11 : 600 B1:713 - Display Location

17- AGENT TO AQS TANK XFER TIMER DN
16- ROCKET TO FILTER XFER TIMER DN
15- RSM IN SHEAR CYCLE
14- RSM READY TO RECEIVE
13- ROCKET IN RSM STATION
12- SPARE
11- AVS TANK WAS EMPTY LAST CHECK
10- RDS CONVEYOR RUNNING
07- ROCKET READY TO ENTER ECR
06- ROCKET AT RDS
05- AVS COMPLETE - GOOD DRAIN ???
04- O.K. TO PUNCH
03- BLAST GATE CLOSED
02- BLAST GATE OPEN
01- POSITIVE STOP LOWERED
00- POSITIVE STOP RAISED

BITS / STEP	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:11 WORD ADRS	HEX VALUE	STEP DESCRIPTION
0.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :600	014F	RDS STATION PARKED AND OFF
0.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :601	014F	PARK RDS STATION
1.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :610	014F	INITIALIZE RDS STATION
1.1	0	0	1	0	0	1	0	1	1	1	0	0	1	1	1	1	B11 :611	25CF	WAITING FOR FEED SYSTEM
1.2	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :612	010F	OPEN BLST GATE & AQS TANK VAC VLV
1.3	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :613	010F	RUN RDS CONVEYOR FORWARD
2.0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :620	010F	STEP INITIALIZE (Engage Rocket)
2.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :621	014F	ROCKET AT PUNCH
2.2	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :622	014F	EXTEND BOTTOM CLAMP
2.3	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :623	014F	EXTEND STOP AND VENT CLAMPS
3.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :630	014F	STEP INITIALIZE (Close Blastgate)
3.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :631	014F	STOP RDS CONVEYOR
3.2	0	0	0	0	0	0	1	1	0	1	0	1	1	1	1	1	B11 :632	035F	CLOSE BLAST GATE
4.0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1	1	B11 :640	015F	STEP INITIALIZE (Punch & Drain Rocket)
4.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :641	014F	EXTEND REAR PUNCH/START AQS
4.2	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :642	014F	RETRACT REAR PUNCH
4.3	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :643	014F	EXTEND VENT PUNCH
4.4	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :644	014F	EXTEND FRONT PUNCH
4.5	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :645	014F	RETRACT FRONT PUNCH
4.6	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :646	014F	RETRACT VENT PUNCH
5.0	1	1	0	0	0	0	0	1	0	1	1	0	1	1	1	1	B11 :650	C16F	STEP INITIALIZE (AQS in Progress)
5.1	1	1	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :651	C14F	OPEN STRAINER VAC VLV
5.2	1	1	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :652	C14F	CLOSE STRAINER VACUUM VALVE & OPEN STRAINER DRAIN VALVE
5.3	1	1	0	0	0	0	0	1	0	1	1	0	1	1	1	1	B11 :653	C16F	CLOSE AQS TANK VAC VLV
5.4	1	1	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :654	C14F	VERIFY AGENT DRAINED O.K.
6.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :660	014F	STEP INITIALIZE (Retract Stops)
6.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :661	014F	RETRACT POSITVE STOP
7.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :670	014F	STEP INITIALIZE (Rotate Rocket)
7.1	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :671	010F	RAISE LIFT TABLE
7.2	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	B11 :672	010F	ROTATE ROCKET
7.3	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :673	014F	LOWER LIFT TABLE
7.4	0	0	1	0	1	0	0	1	0	1	0	0	1	1	1	1	B11 :674	294F	HOME ROTATOR
8.0	0	0	1	0	1	0	0	1	0	1	0	0	1	1	1	1	B11 :680	294F	STEP INITIALIZE (Rocket to RSM)
8.1	0	0	1	1	1	0	0	1	0	1	0	0	1	1	1	1	B11 :681	394F	START RSM STATION
8.2	0	0	0	0	1	0	0	1	0	1	0	0	1	1	1	1	B11 :682	094F	RUN RDS CONVEYOR FORWARD
8.3	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :683	014F	STOP RDS CONVEYOR
9.0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :690	014F	STEP INITIALIZE (Ready for Next)
9.1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	B11 :691	014F	EXTEND POSITVE STOP

Programmatic Process FAWB - TOCDF Line B — January-7-04

Rocket System File Name: RKTRDS.XLS Cntl - TOC101A & TOC104A C131 - Major Step Counter

Pointer Number: 13 Datatable Word (1 or 2) = **1** REV - 6A C132 - Minor Step Location

Rocket Drain Station **BYPASS MASK** File = B11 : 800 B1:713 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:10 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- ROTATOR HOME	16- ROTATOR ACTUATED	15- LIFT TABLE LOWERED	14- LIFT TABLE RAISED	13- VENT PUNCH RETRACTED	12- VENT PUNCH EXTENDED	11- FRONT PUNCH RETRACTED	10- FRONT PUNCH EXTENDED	07- REAR PUNCH RETRACTED	06- REAR PUNCH EXTENDED	05- BOTTOM CLAMP RETRACTED	04- BOTTOM CLAMP EXTENDED	03- VENT CLAMP RETRACTED	02- VENT CLAMP EXTENDED	01- STOP CLAMP RETRACTED	00- STOP CLAMP EXTENDED			
0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :800	FFFF	RDS STATION PARKED AND OFF
0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :801	FFFF	PARK RDS STATION
1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :810	FFFF	INITIALIZE RDS STATION
1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :811	FFFF	WAITING FOR FEED SYSTEM
1.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :812	FFFF	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :813	FFFF	RUN RDS CONVEYOR FORWARD
2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :820	FFFF	STEP INITIALIZE (Engage Rocket)
2.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :821	FFFF	ROCKET AT PUNCH
2.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :822	FFFF	EXTEND BOTTOM CLAMP
2.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :823	FFFF	EXTEND STOP AND VENT CLAMPS
3.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :830	FFFF	STEP INITIALIZE (Close Blastgate)
3.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :831	FFFF	STOP RDS CONVEYOR
3.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :832	FFFF	CLOSE BLAST GATE
4.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :840	FFFF	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :841	FFFF	EXTEND REAR PUNCH/START AQS
4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :842	FFFF	RETRACT REAR PUNCH
4.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :843	FFFF	EXTEND VENT PUNCH
4.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :844	FFFF	EXTEND FRONT PUNCH
4.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :845	FFFF	RETRACT FRONT PUNCH
4.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :846	FFFF	RETRACT VENT PUNCH
5.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :850	FFFF	STEP INITIALIZE (AQS in Progress)
5.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :851	FFFF	OPEN STRAINER VAC VLV
5.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :852	FFFF	CLOSE STRAINER VACUUM VALVE & OPEN STRAINER DRAIN VALVE
5.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :853	0000	CLOSE AQS TANK VAC VLV
5.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :854	FFFF	VERIFY AGENT DRAINED O.K.
6.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :860	FFFF	STEP INITIALIZE (Retract Stops)
6.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :861	FFFF	RETRACT POSITVE STOP
7.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :870	FFFF	STEP INITIALIZE (Rotate Rocket)
7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :871	FFFF	RAISE LIFT TABLE
7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :872	FFFF	ROTATE ROCKET
7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :873	FFFF	LOWER LIFT TABLE
7.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :874	FFFF	HOME ROTATOR
8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :880	FFFF	STEP INITIALIZE (Rocket to RSM)
8.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :881	FFFF	START RSM STATION
8.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :882	FFFF	RUN RDS CONVEYOR FORWARD
8.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :883	0000	STOP RDS CONVEYOR
9.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :890	FFFF	STEP INITIALIZE (Ready for Next)
9.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :891	FFFF	EXTEND POSITVE STOP

Programmatic Process FAWB - TOCDF Line B — January-7-04

Rocket System File Name: RKTRDS.XLS Cntl - TOC101A & TOC104A C131 - Major Step Counter
Pointer Number: 13 Datatable Word (1 or 2) = **2** REV - 6A C132 - Minor Step Location
Rocket Drain Station **BYPASS MASK** File = B11 : 1000 B1:713 - Display Location

17- AGENT TO AQS TANK XFER TIMER DN
16- ROCKET TO FILTER XFER TIMER DN
15- RSM IN SHEAR CYCLE
14- RSM READY TO RECEIVE
13- ROCKET IN RSM STATION
12- SPARE
11- AVS TANK WAS EMPTY LAST CHECK
10- RDS CONVEYOR RUNNING
07- ROCKET READY TO ENTER ECR
06- ROCKET AT RDS
05- AVS COMPLETE - GOOD DRAIN ???
04- O.K. TO PUNCH
03- BLAST GATE CLOSED
02- BLAST GATE OPEN
01- POSITIVE STOP LOWERED
00- POSITIVE STOP RAISED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:11 WORD ADDR	HEX VALUE	STEP DESCRIPTION
STEP																			
0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1000	FFFF	RDS STATION PARKED AND OFF
0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1001	FFFF	PARK RDS STATION
1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1010	FFFF	INITIALIZE RDS STATION
1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1011	FFFF	WAITING FOR FEED SYSTEM
1.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1012	FFFF	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1013	FFFF	RUN RDS CONVEYOR FORWARD
2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1020	FFFF	STEP INITIALIZE (Engage Rocket)
2.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1021	FFFF	ROCKET AT PUNCH
2.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1022	FFFF	EXTEND BOTTOM CLAMP
2.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1023	FFFF	EXTEND STOP AND VENT CLAMPS
3.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1030	FFFF	STEP INITIALIZE (Close Blastgate)
3.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1031	FFFF	STOP RDS CONVEYOR
3.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1032	FFFF	CLOSE BLAST GATE
4.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1040	FFFF	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1041	FFFF	EXTEND REAR PUNCH/START AQS
4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1042	FFFF	RETRACT REAR PUNCH
4.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1043	FFFF	EXTEND VENT PUNCH
4.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1044	FFFF	EXTEND FRONT PUNCH
4.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1045	FFFF	RETRACT FRONT PUNCH
4.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1046	FFFF	RETRACT VENT PUNCH
5.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1050	FFFF	STEP INITIALIZE (AQS in Progress)
5.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1051	FFFF	OPEN STRAINER VAC VLV
5.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1052	FFFF	CLOSE STRAINER VACUUM VALVE & OPEN STRAINER DRAIN VALVE
5.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :1053	0000	CLOSE AQS TANK VAC VLV
5.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1054	FFFF	VERIFY AGENT DRAINED O.K.
6.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1060	FFFF	STEP INITIALIZE (Retract Stops)
6.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1061	FFFF	RETRACT POSITVE STOP
7.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1070	FFFF	STEP INITIALIZE (Rotate Rocket)
7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1071	FFFF	RAISE LIFT TABLE
7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1072	FFFF	ROTATE ROCKET
7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1073	FFFF	LOWER LIFT TABLE
7.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1074	FFFF	HOME ROTATOR
8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1080	FFFF	STEP INITIALIZE (Rocket to RSM)
8.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1081	FFFF	START RSM STATION
8.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1082	FFFF	RUN RDS CONVEYOR FORWARD
8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1083	FFFF	STOP RDS CONVEYOR
9.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1090	FFFF	STEP INITIALIZE (Ready for Next)
9.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B11 :1091	FFFF	EXTEND POSITVE STOP

Programmatic Process FAWB - TOCDF Line B — January-7-04

Rocket System File Name: RKTRDS.XLS Cntl - TOC101A & TOC104A C131 - Major Step Counter
Pointer Number: 15 Datatable Word (1 or 2) = **1** REV - 6A C132 - Minor Step Location
Rocket Drain Station **OUTPUT** File = B11 : 1600 B1:713 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:18 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- LIFT TABLE LOWER	16- LIFT TABLE RAISE	15- VENT PUNCH RETRACT	14- VENT PUNCH EXTEND	13- FRONT PUNCH RETRACT	12- FRONT PUNCH EXTEND	11- REAR PUNCH RETRACT	10- REAR PUNCH EXTEND	07- BOTTOM CLAMP RETRACT	06- BOTTOM CLAMP EXTEND	05- AQS TANK LEVEL ISOLATION VALVE	04- SPARE	03- STOP AND VENT CLAMP RETRACT	02- STOP AND VENT CLAMP EXTEND	01- RDS CONVEYOR REVERSE	00- RDS CONVEYOR FORWARD			
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :1600	0000	RDS STATION PARKED AND OFF
0.1	1	0	1	0	1	0	1	0	1	0	0	0	0	1	0	0	B11 :1601	AA84	PARK RDS STATION
1.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1610	AA88	INITIALIZE RDS STATION
1.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1611	AA88	WAITING FOR FEED SYSTEM
1.2	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1612	AA88	OPEN BLST GATE & AQS TANK VAC VLV
1.3	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1613	AA89	RUN RDS CONVEYOR FORWARD
2.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1620	AA89	STEP INITIALIZE (Engage Rocket)
2.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1621	AA89	ROCKET AT PUNCH
2.2	1	0	1	0	1	0	1	0	0	1	0	0	1	0	0	1	B11 :1622	AA49	EXTEND BOTTOM CLAMP
2.3	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	1	B11 :1623	AA45	EXTEND STOP AND VENT CLAMPS
3.0	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	1	B11 :1630	AA45	STEP INITIALIZE (Close Blastgate)
3.1	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1631	AA44	STOP RDS CONVEYOR
3.2	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1632	AA44	CLOSE BLAST GATE
4.0	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1640	AA44	STEP INITIALIZE (Punch & Drain Rocket)
4.1	1	0	1	0	1	0	0	1	0	1	0	0	0	1	0	0	B11 :1641	A944	EXTEND REAR PUNCH/START AQS
4.2	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1642	AA44	RETRACT REAR PUNCH
4.3	1	0	0	1	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1643	9A44	EXTEND VENT PUNCH
4.4	1	0	0	1	0	1	1	0	0	1	0	0	0	1	0	0	B11 :1644	9644	EXTEND FRONT PUNCH
4.5	1	0	0	1	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1645	9A44	RETRACT FRONT PUNCH
4.6	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1646	AA44	RETRACT VENT PUNCH
5.0	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1650	AA44	STEP INITIALIZE (AQS in Progress)
5.1	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1651	AA44	OPEN STRAINER VAC VLV
5.2	1	0	1	0	1	0	1	0	0	1	0	0	0	1	0	0	B11 :1652	AA44	CLOSE STRAINER VACUUM VALVE & OPEN STRAINER DRAIN VALVE
5.3	1	0	1	0	1	0	1	0	0	1	1	0	0	1	0	0	B11 :1653	AA64	CLOSE AQS TANK VAC VLV
5.4	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	B11 :1654	AAA8	VERIFY AGENT DRAINED O.K.
6.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1660	AA88	STEP INITIALIZE (Retract Stops)
6.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1661	AA88	RETRACT POSITVE STOP
7.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1670	AA88	STEP INITIALIZE (Rotate Rocket)
7.1	0	1	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1671	6A88	RAISE LIFT TABLE
7.2	0	1	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1672	6A88	ROTATE ROCKET
7.3	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1673	AA88	LOWER LIFT TABLE
7.4	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1674	AA88	HOME ROTATOR
8.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1680	AA88	STEP INITIALIZE (Rocket to RSM)
8.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1681	AA88	START RSM STATION
8.2	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	1	B11 :1682	AA89	RUN RDS CONVEYOR FORWARD
8.3	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1683	AA88	STOP RDS CONVEYOR
9.0	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1690	AA88	STEP INITIALIZE (Ready for Next)
9.1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0	0	B11 :1691	AA88	EXTEND POSITVE STOP

Programmatic Process FAWB - TOCDF Line B — January-7-04

Rocket System File Name: RKTRDS.XLS Cntl - TOC101A & TOC104A C131 - Major Step Counter
Pointer Number: 15 Datatable Word (1 or 2) = **2** REV - 6A C132 - Minor Step Location
Rocket Drain Station **OUTPUT** File = B11 : 1800 B1:713 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:19 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- LAST SEQUENCER STEP	16- LAST SUB STEP	15- O.K. TO REPEAT STEP	14- O.K. TO BYPASS	13- STRAINER VACUUM VALVE	12- STRAINER DRAIN VALVE	11- START AQS TANK DRAIN	10- AQS TANK VACUUM VALVE	07- AGENT DRAINING TO START	06- RSM START	05- BLAST GATE CLOSE	04- BLAST GATE OPEN	03- POSITIVE STOP LOWER	02- POSITIVE STOP RAISE	01- ROTATOR HOME	00- ROTATOR ACTUATE			
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B11 :1800	0000	RDS STATION PARKED AND OFF
0.1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1801	4026	PARK RDS STATION
1.0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1810	0026	INITIALIZE RDS STATION
1.1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1811	0126	WAITING FOR FEED SYSTEM
1.2	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1812	0116	OPEN BLST GATE & AQS TANK VAC VLV
1.3	0	1	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1813	4116	RUN RDS CONVEYOR FORWARD
2.0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1820	0116	STEP INITIALIZE (Engage Rocket)
2.1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1821	0116	ROCKET AT PUNCH
2.2	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1822	0116	EXTEND BOTTOM CLAMP
2.3	0	1	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1823	4116	EXTEND STOP AND VENT CLAMPS
3.0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1830	0116	STEP INITIALIZE (Close Blastgate)
3.1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	B11 :1831	0116	STOP RDS CONVEYOR
3.2	0	1	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1832	4126	CLOSE BLAST GATE
4.0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1840	0126	STEP INITIALIZE (Punch & Drain Rocket)
4.1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1841	0126	EXTEND REAR PUNCH/START AQS
4.2	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1842	0126	RETRACT REAR PUNCH
4.3	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1843	0126	EXTEND VENT PUNCH
4.4	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1844	0126	EXTEND FRONT PUNCH
4.5	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	B11 :1845	0126	RETRACT FRONT PUNCH
4.6	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	B11 :1846	61A6	RETRACT VENT PUNCH
5.0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	B11 :1850	01A6	STEP INITIALIZE (AQS in Progress)
5.1	0	0	0	0	1	0	0	1	0	0	1	0	0	1	1	0	B11 :1851	0926	OPEN STRAINER VAC VLV
5.2	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	B11 :1852	0526	CLOSE STRAINER VACUUM VALVE & OPEN STRAINER DRAIN VALVE
5.3	0	0	1	1	0	1	0	0	0	0	1	0	0	1	1	0	B11 :1853	3426	CLOSE AQS TANK VAC VLV
5.4	0	1	0	0	0	1	1	0	0	0	1	0	0	1	1	0	B11 :1854	4626	VERIFY AGENT DRAINED O.K.
6.0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1860	0026	STEP INITIALIZE (Retract Stops)
6.1	0	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1861	402A	RETRACT POSITVE STOP
7.0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1870	002A	STEP INITIALIZE (Rotate Rocket)
7.1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1871	002A	RAISE LIFT TABLE
7.2	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	B11 :1872	0029	ROTATE ROCKET
7.3	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	B11 :1873	0029	LOWER LIFT TABLE
7.4	0	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1874	402A	HOME ROTATOR
8.0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1880	002A	STEP INITIALIZE (Rocket to RSM)
8.1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	B11 :1881	006A	START RSM STATION
8.2	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	B11 :1882	006A	RUN RDS CONVEYOR FORWARD
8.3	0	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1883	402A	STOP RDS CONVEYOR
9.0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	B11 :1890	002A	STEP INITIALIZE (Ready for Next)
9.1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	B11 :1891	8026	EXTEND POSITVE STOP

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 21 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **INPUT COMPARISON** File = B12 : 0 N43 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:20 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- RDS READY TO SEND ROCKET	16- SPARE	15- DFS GATE HAS CYCLED	14- DFS NORMAL	13- ROCKET FULLY FORWARD	12- ROCKET AT PUSHER	11- WATER SPRAY ON	10- SPARE	07- SHEAR RETRACTED	06- SHEAR EXTENDED	05- SPARE	04- SPARE	03- INDEX STOPS RETRACTED	02- INDEX STOPS EXTENDED	01- PUSHER AT COMMANDED POSITION	00- PUSHER HOME			
0.0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B12 :0	0049	RSM PARKED AND OFF
0.1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	B12 :1	0049	PARK RSM
1.0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	B12 :10	0089	INITIALIZE RSM STATION
1.1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	B12 :11	8089	WAITING FOR RKT
1.2	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	1	B12 :12	0489	RSM CONVEYOR FORWARD
1.3	0	0	0	0	1	1	0	0	1	0	0	0	0	1	0	1	B12 :13	0C85	EXTEND INDEX STOPS
1.4	0	0	0	0	1	1	0	0	1	0	0	0	0	1	0	1	B12 :14	0C85	STOP RSM CONVEYOR
2.0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	1	B12 :20	0485	STEP INITIALIZE
2.1	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1	0	B12 :21	0486	INDEX PUSHER TO #1 (FUZE)
2.2	0	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	B12 :22	0686	SPRAY WATER ON
2.3	0	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	B12 :23	0644	EXTEND SHEAR
2.4	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	B12 :24	0684	RETRACT SHEAR
2.5	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	B12 :25	0484	SPRAY WATER OFF
3.0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	B12 :30	0484	STEP INITIALIZE
3.1	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	B12 :31	0488	RETRACT INDEX STOPS
3.2	0	0	1	0	0	1	0	0	1	0	0	0	1	0	0	0	B12 :32	2488	WAIT FOR DFS GATE CYCLE
4.0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	B12 :40	0488	STEP INITIALIZE
4.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	B12 :41	008A	INDEX PUSHER TO #2
4.2	0	0	0	1	0	0	1	0	1	0	0	0	1	0	1	0	B12 :42	128A	SPRAY WATER ON
4.3	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	B12 :43	1248	EXTEND SHEAR
4.4	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	B12 :44	0288	RETRACT SHEAR
4.5	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :45	0088	SPRAY WATER OFF
5.0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :50	0088	STEP INITIALIZE
5.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	B12 :51	008A	INDEX PUSHER TO #3
5.2	0	0	0	1	0	0	1	0	1	0	0	0	1	0	1	0	B12 :52	128A	SPRAY WATER ON
5.3	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	B12 :53	1248	EXTEND SHEAR
5.4	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	B12 :54	0288	RETRACT SHEAR
5.5	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :55	0088	SPRAY WATER OFF
6.0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :60	0088	STEP INITIALIZE
6.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	B12 :61	008A	INDEX PUSHER TO #4
6.2	0	0	0	1	0	0	1	0	1	0	0	0	1	0	1	0	B12 :62	128A	SPRAY WATER ON
6.3	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	B12 :63	1248	EXTEND SHEAR
6.4	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	B12 :64	0288	RETRACT SHEAR
6.5	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :65	0088	SPRAY WATER OFF
7.0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :70	0088	STEP INITIALIZE
7.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	B12 :71	008A	INDEX PUSHER TO #5
7.2	0	0	0	1	0	0	1	0	1	0	0	0	1	0	1	0	B12 :72	128A	SPRAY WATER ON
7.3	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	B12 :73	1248	EXTEND SHEAR
7.4	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	B12 :74	0288	RETRACT SHEAR
7.5	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :75	0088	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 21 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **INPUT COMPARISON** File = B12 : 0 N43 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:20 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- RDS READY TO SEND ROCKET	16- SPARE	15- DFS GATE HAS CYCLED	14- DFS NORMAL	13- ROCKET FULLY FORWARD	12- ROCKET AT PUSHER	11- WATER SPRAY ON	10- SPARE	07- SHEAR RETRACTED	06- SHEAR EXTENDED	05- SPARE	04- SPARE	03- INDEX STOPS RETRACTED	02- INDEX STOPS EXTENDED	01- PUSHER AT COMMANDED POSITION	00- PUSHER HOME			
7.6	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :76	2088	WAIT FOR DFS GATE CYCLE
8.0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :80	0088	STEP INITIALIZE
8.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	B12 :81	008A	INDEX PUSHER TO #6
8.2	0	0	0	1	0	0	1	0	1	0	0	0	1	0	1	0	B12 :82	128A	SPRAY WATER ON
8.3	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	B12 :83	1248	EXTEND SHEAR
8.4	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	B12 :84	0288	RETRACT SHEAR
8.5	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :85	0088	SPRAY WATER OFF
9.0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :90	0088	STEP INITIALIZE
9.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	B12 :91	008A	INDEX PUSHER TO #7
9.2	0	0	0	1	0	0	1	0	1	0	0	0	1	0	1	0	B12 :92	128A	SPRAY WATER ON
9.3	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	B12 :93	1248	EXTEND SHEAR
9.4	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	B12 :94	0288	RETRACT SHEAR
9.5	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :95	0088	SPRAY WATER OFF
9.6	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :96	2088	WAIT FOR DFS GATE CYCLE
10.0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	B12 :100	0088	STEP INITIALIZE
10.1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	B12 :101	008A	INDEX PUSHER TO #8
10.2	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	B12 :102	0089	HOME PUSHER
10.3	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	B12 :103	0089	STOP PUSHER (DONE WITH RKTS)
11.0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	B12 :110	0041	BSR PARKED (proj. except 8")
11.1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	B12 :111	0041	PARK BSR
12.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :120	0081	INITIALIZE BSR (proj. except 8")
12.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :121	0081	WAIT FOR BURSTER FROM PMD
12.2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :122	0082	INDEX PUSHER TO #1 BSR CUT
12.3	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	B12 :123	1282	SPRAY WATER ON
12.4	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	B12 :124	1242	EXTEND SHEAR
12.5	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	B12 :125	0282	RETRACT SHEAR
12.6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :126	0082	SPRAY WATER OFF
13.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :130	0082	STEP INITIALIZE
13.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :131	0082	INDEX PUSHER TO BURSTER DUMP
13.2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :132	0081	HOME PUSHER
13.3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :133	0081	STOP PUSHER (BSR DONE)
14.0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	B12 :140	0041	BSR PARKED (8" projectiles)
14.1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	B12 :141	0041	PARK BSR
15.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :150	0081	INITIALIZE BSR (8" proj.)
15.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :151	0081	WAIT FOR BURSTER FROM PMD
15.2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :152	0082	INDEX PUSHER TO #1 BSR CUT
15.3	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	B12 :153	1282	SPRAY WATER ON
15.4	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	B12 :154	1242	EXTEND SHEAR
15.5	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	B12 :155	0282	RETRACT SHEAR
15.6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :156	0082	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 21 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **INPUT COMPARISON** File = B12 : 0 N43 - Display Location

17- RDS READY TO SEND ROCKET
16- SPARE
15- DFS GATE HAS CYCLED
14- DFS NORMAL
13- ROCKET FULLY FORWARD
12- ROCKET AT PUSHER
11- WATER SPRAY ON
10- SPARE
07- SHEAR RETRACTED
06- SHEAR EXTENDED
05- SPARE
04- SPARE
03- INDEX STOPS RETRACTED
02- INDEX STOPS EXTENDED
01- PUSHER AT COMMANDED POSITION
00- PUSHER HOME

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:20 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
16.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :160	0082	STEP INITIALIZE
16.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :161	0082	INDEX PUSHER TO #2 BSR CUT (8")
16.2	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	B12 :162	1282	SPRAY WATER ON
16.3	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	B12 :163	1242	EXTEND SHEAR
16.4	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	B12 :164	0282	RETRACT SHEAR
16.5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :165	0082	SPRAY WATER OFF
17.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :170	0082	STEP INITIALIZE
17.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	B12 :171	0082	INDEX PUSHER TO DUMP BURSTER
17.2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :172	0081	HOME PUSHER
17.3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :173	0081	STOP PUSHER (BSR DONE)

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 21 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **INPUT COMPARISON** File = B12 : 200 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:21 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :200	0000	RSM PARKED AND OFF
0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :201	0000	PARK RSM
1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :210	0000	INITIALIZE RSM STATION
1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :211	0000	WAITING FOR RKT
1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :212	0000	RSM CONVEYOR FORWARD
1.3	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :213	2400	EXTEND INDEX STOPS
1.4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :214	2000	STOP RSM CONVEYOR
2.0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	B12 :220	0200	STEP INITIALIZE
2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :221	0003	INDEX PUSHER TO #1 (FUZE)
2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :222	0003	SPRAY WATER ON
2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :223	0001	EXTEND SHEAR
2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :224	0001	RETRACT SHEAR
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :225	0001	SPRAY WATER OFF
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :230	0001	STEP INITIALIZE
3.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :231	0001	RETRACT INDEX STOPS
3.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :232	0001	WAIT FOR DFS GATE CYCLE
4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :240	0001	STEP INITIALIZE
4.1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	B12 :241	0205	INDEX PUSHER TO #2
4.2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B12 :242	0005	SPRAY WATER ON
4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :243	0001	EXTEND SHEAR
4.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :244	0001	RETRACT SHEAR
4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :245	0001	SPRAY WATER OFF
5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :250	0001	STEP INITIALIZE
5.1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	B12 :251	0209	INDEX PUSHER TO #3
5.2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	B12 :252	0009	SPRAY WATER ON
5.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :253	0001	EXTEND SHEAR
5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :254	0001	RETRACT SHEAR
5.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :255	0001	SPRAY WATER OFF
6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :260	0001	STEP INITIALIZE
6.1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	B12 :261	0211	INDEX PUSHER TO #4
6.2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :262	0011	SPRAY WATER ON
6.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :263	0001	EXTEND SHEAR
6.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :264	0001	RETRACT SHEAR
6.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :265	0001	SPRAY WATER OFF
7.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :270	0001	STEP INITIALIZE
7.1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	B12 :271	0221	INDEX PUSHER TO #5
7.2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	B12 :272	0021	SPRAY WATER ON
7.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :273	0001	EXTEND SHEAR
7.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :274	0001	RETRACT SHEAR
7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :275	0001	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 21 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **INPUT COMPARISON** File = B12 : 200 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:21 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
7.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :276	0001	WAIT FOR DFS GATE CYCLE
8.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :280	0001	STEP INITIALIZE
8.1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	B12 :281	0241	INDEX PUSHER TO #6
8.2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	B12 :282	0041	SPRAY WATER ON
8.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :283	0001	EXTEND SHEAR
8.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :284	0001	RETRACT SHEAR
8.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :285	0001	SPRAY WATER OFF
9.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :290	0001	STEP INITIALIZE
9.1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	B12 :291	0281	INDEX PUSHER TO #7
9.2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	B12 :292	0081	SPRAY WATER ON
9.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :293	0001	EXTEND SHEAR
9.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :294	0001	RETRACT SHEAR
9.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :295	0001	SPRAY WATER OFF
9.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :296	0001	WAIT FOR DFS GATE CYCLE
10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :300	0001	STEP INITIALIZE
10.1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	B12 :301	0201	INDEX PUSHER TO #8
10.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :302	0001	HOME PUSHER
10.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :303	0001	STOP PUSHER (DONE WITH RKTS)
11.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :310	0000	BSR PARKED (proj. except 8")
11.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :311	0000	PARK BSR
12.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :320	0000	INITIALIZE BSR (proj. except 8")
12.1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	B12 :321	1001	WAIT FOR BURSTER FROM PMD
12.2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	B12 :322	0203	INDEX PUSHER TO #1 BSR CUT
12.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :323	0003	SPRAY WATER ON
12.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :324	0003	EXTEND SHEAR
12.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :325	0003	RETRACT SHEAR
12.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :326	0003	SPRAY WATER OFF
13.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :330	0003	STEP INITIALIZE
13.1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	B12 :331	0204	INDEX PUSHER TO BURSTER DUMP
13.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :332	0000	HOME PUSHER
13.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :333	0000	STOP PUSHER (BSR DONE)
14.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :340	0000	BSR PARKED (8" projectiles)
14.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :341	0000	PARK BSR
15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :350	0000	INITIALIZE BSR (8" proj.)
15.1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	B12 :351	1000	WAIT FOR BURSTER FROM PMD
15.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	B12 :352	0002	INDEX PUSHER TO #1 BSR CUT
15.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :353	0003	SPRAY WATER ON
15.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :354	0003	EXTEND SHEAR
15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :355	0003	RETRACT SHEAR
15.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :356	0003	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 21 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **INPUT COMPARISON** File = B12 : 200 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:21 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	B12 :360	0003	STEP INITIALIZE
16.1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B12 :361	0005	INDEX PUSHER TO #2 BSR CUT (8")
16.2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B12 :362	0005	SPRAY WATER ON
16.3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B12 :363	0005	EXTEND SHEAR
16.4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B12 :364	0005	RETRACT SHEAR
16.5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B12 :365	0005	SPRAY WATER OFF
17.0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	B12 :370	0005	STEP INITIALIZE
17.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	B12 :371	0008	INDEX PUSHER TO DUMP BURSTER
17.2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	B12 :372	0200	HOME PUSHER
17.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :373	0000	STOP PUSHER (BSR DONE)

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 22 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **NORMAL MASK** File = B12 : 400 N43 - Display Location

17- RDS READY TO SEND ROCKET
16- SPARE
15- DFS GATE HAS CYCLED
14- DFS NORMAL
13- ROCKET FULLY FORWARD
12- ROCKET AT PUSHER
11- WATER SPRAY ON
10- SPARE
07- SHEAR RETRACTED
06- SHEAR EXTENDED
05- SPARE
04- SPARE
03- INDEX STOPS RETRACTED
02- INDEX STOPS EXTENDED
01- PUSHER AT COMMANDED POSITION
00- PUSHER HOME

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:22 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
0.0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	0	1	B12 :400	02FD	RSM PARKED AND OFF
0.1	0	0	0	0	1	1	0	0	1	1	1	1	1	1	0	1	B12 :401	0CFD	PARK RSM
1.0	0	0	0	0	1	1	0	0	1	1	1	1	1	1	0	1	B12 :410	0CFD	INITIALIZE RSM STATION
1.1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	0	1	B12 :411	8DFD	WAITING FOR RKT
1.2	0	0	0	0	1	1	0	0	1	1	1	1	1	1	0	1	B12 :412	0CFD	RSM CONVEYOR FORWARD
1.3	0	0	0	0	1	1	0	0	1	1	1	1	1	1	0	1	B12 :413	0CFD	EXTEND INDEX STOPS
1.4	0	0	0	0	1	1	0	0	1	1	1	1	1	1	0	1	B12 :414	0CFD	STOP RSM CONVEYOR
2.0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	1	B12 :420	06FD	STEP INITIALIZE
2.1	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	B12 :421	04FF	INDEX PUSHER TO #1 (FUZE)
2.2	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	B12 :422	06FF	SPRAY WATER ON
2.3	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	1	B12 :423	06FD	EXTEND SHEAR
2.4	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	1	B12 :424	06FD	RETRACT SHEAR
2.5	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	1	B12 :425	06FD	SPRAY WATER OFF
3.0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	1	B12 :430	06FD	STEP INITIALIZE
3.1	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	1	B12 :431	06FD	RETRACT INDEX STOPS
3.2	0	0	1	0	0	1	1	0	1	1	1	1	1	1	0	1	B12 :432	26FD	WAIT FOR DFS GATE CYCLE
4.0	0	0	1	0	0	1	1	0	1	1	0	0	1	1	0	1	B12 :440	26CD	STEP INITIALIZE
4.1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	B12 :441	00CF	INDEX PUSHER TO #2
4.2	0	0	1	1	0	0	1	0	1	1	0	0	1	1	1	1	B12 :442	32CF	SPRAY WATER ON
4.3	0	0	1	1	0	0	1	0	1	1	0	0	1	1	0	1	B12 :443	32CD	EXTEND SHEAR
4.4	0	0	1	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :444	22CD	RETRACT SHEAR
4.5	0	0	1	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :445	22CD	SPRAY WATER OFF
5.0	0	0	0	0	0	0	1	0	1	1	0	0	1	1	1	1	B12 :450	02CF	STEP INITIALIZE
5.1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	B12 :451	00CF	INDEX PUSHER TO #3
5.2	0	0	0	1	0	0	1	0	1	1	0	0	1	1	1	1	B12 :452	12CF	SPRAY WATER ON
5.3	0	0	0	1	0	0	1	0	1	1	0	0	1	1	0	1	B12 :453	12CD	EXTEND SHEAR
5.4	0	0	0	0	0	0	1	0	1	1	1	1	1	1	0	1	B12 :454	02FD	RETRACT SHEAR
5.5	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :455	02CD	SPRAY WATER OFF
6.0	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :460	02CD	STEP INITIALIZE
6.1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	B12 :461	00CF	INDEX PUSHER TO #4
6.2	0	0	0	1	0	0	1	0	1	1	0	0	1	1	1	1	B12 :462	12CF	SPRAY WATER ON
6.3	0	0	0	1	0	0	1	0	1	1	0	0	1	1	0	1	B12 :463	12CD	EXTEND SHEAR
6.4	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :464	02CD	RETRACT SHEAR
6.5	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :465	02CD	SPRAY WATER OFF
7.0	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :470	02CD	STEP INITIALIZE
7.1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	B12 :471	00CF	INDEX PUSHER TO #5
7.2	0	0	0	1	0	0	1	0	1	1	0	0	1	1	1	1	B12 :472	12CF	SPRAY WATER ON
7.3	0	0	0	1	0	0	1	0	1	1	0	0	1	1	0	1	B12 :473	12CD	EXTEND SHEAR
7.4	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :474	02CD	RETRACT SHEAR
7.5	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :475	02CD	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 22 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **NORMAL MASK** File = B12 : 400 N43 - Display Location

17- RDS READY TO SEND ROCKET
16- SPARE
15- DFS GATE HAS CYCLED
14- DFS NORMAL
13- ROCKET FULLY FORWARD
12- ROCKET AT PUSHER
11- WATER SPRAY ON
10- SPARE
07- SHEAR RETRACTED
06- SHEAR EXTENDED
05- SPARE
04- SPARE
03- INDEX STOPS RETRACTED
02- INDEX STOPS EXTENDED
01- PUSHER AT COMMANDED POSITION
00- PUSHER HOME

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:22 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
7.6	0	0	1	0	0	0	1	0	1	1	1	1	1	1	0	1	B12 :476	22FD	WAIT FOR DFS GATE CYCLE
8.0	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :480	02CD	STEP INITIALIZE
8.1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	B12 :481	00CF	INDEX PUSHER TO #6
8.2	0	0	1	1	0	0	1	0	1	1	0	0	1	1	1	1	B12 :482	32CF	SPRAY WATER ON
8.3	0	0	0	1	0	0	1	0	1	1	0	0	1	1	0	1	B12 :483	12CD	EXTEND SHEAR
8.4	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :484	02CD	RETRACT SHEAR
8.5	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :485	02CD	SPRAY WATER OFF
9.0	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :490	02CD	STEP INITIALIZE
9.1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	B12 :491	00CF	INDEX PUSHER TO #7
9.2	0	0	0	1	0	0	1	0	1	1	0	0	1	1	1	1	B12 :492	12CF	SPRAY WATER ON
9.3	0	0	0	1	0	0	1	0	1	1	0	0	1	1	0	1	B12 :493	12CD	EXTEND SHEAR
9.4	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :494	02CD	RETRACT SHEAR
9.5	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :495	02CD	SPRAY WATER OFF
9.6	0	0	1	0	0	0	1	0	1	1	1	1	1	1	0	1	B12 :496	22FD	WAIT FOR DFS GATE CYCLE
10.0	0	0	0	0	0	0	1	0	1	1	0	0	1	1	0	1	B12 :500	02CD	STEP INITIALIZE
10.1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	B12 :501	00CF	INDEX PUSHER TO #8
10.2	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	B12 :502	00FD	HOME PUSHER
10.3	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	B12 :503	00FD	STOP PUSHER (DONE WITH RKTS)
11.0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	B12 :510	00C1	BSR PARKED (proj. except 8")
11.1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	B12 :511	00C1	PARK BSR
12.0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	B12 :520	00C1	INITIALIZE BSR (proj. except 8")
12.1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	B12 :521	00C3	WAIT FOR BURSTER FROM PMD
12.2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	B12 :522	00C3	INDEX PUSHER TO #1 BSR CUT
12.3	0	0	0	1	0	0	1	0	1	1	0	0	0	0	1	1	B12 :523	12C3	SPRAY WATER ON
12.4	0	0	0	1	0	0	1	0	1	1	0	0	0	0	1	1	B12 :524	12C3	EXTEND SHEAR
12.5	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :525	02C3	RETRACT SHEAR
12.6	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	B12 :526	00C3	SPRAY WATER OFF
13.0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	B12 :530	00C3	STEP INITIALIZE
13.1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	B12 :531	00C3	INDEX PUSHER TO BURSTER DUMP
13.2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	B12 :532	00C3	HOME PUSHER
13.3	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	B12 :533	00C1	STOP PUSHER (BSR DONE)
14.0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	B12 :540	02C1	BSR PARKED (8" projectiles)
14.1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	B12 :541	02C1	PARK BSR
15.0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	B12 :550	02C1	INITIALIZE BSR (8" proj.)
15.1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	B12 :551	02C1	WAIT FOR BURSTER FROM PMD
15.2	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :552	02C3	INDEX PUSHER TO #1 BSR CUT
15.3	0	0	0	1	0	0	1	0	1	1	0	0	0	0	1	1	B12 :553	12C3	SPRAY WATER ON
15.4	0	0	0	1	0	0	1	0	1	1	0	0	0	0	1	1	B12 :554	12C3	EXTEND SHEAR
15.5	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :555	02C3	RETRACT SHEAR
15.6	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :556	02C3	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 22 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **NORMAL MASK** File = B12 : 400 N43 - Display Location

17- RDS READY TO SEND ROCKET
16- SPARE
15- DFS GATE HAS CYCLED
14- DFS NORMAL
13- ROCKET FULLY FORWARD
12- ROCKET AT PUSHER
11- WATER SPRAY ON
10- SPARE
07- SHEAR RETRACTED
06- SHEAR EXTENDED
05- SPARE
04- SPARE
03- INDEX STOPS RETRACTED
02- INDEX STOPS EXTENDED
01- PUSHER AT COMMANDED POSITION
00- PUSHER HOME

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:22 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
16.0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :560	02C3	STEP INITIALIZE
16.1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :561	02C3	INDEX PUSHER TO #2 BSR CUT (8")
16.2	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :562	02C3	SPRAY WATER ON
16.3	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :563	02C3	EXTEND SHEAR
16.4	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :564	02C3	RETRACT SHEAR
16.5	0	0	1	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :565	22C3	SPRAY WATER OFF
17.0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :570	22C3	STEP INITIALIZE
17.1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	1	B12 :571	02C3	INDEX PUSHER TO DUMP BURSTER
17.2	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	B12 :572	02C1	HOME PUSHER
17.3	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	B12 :573	02C1	STOP PUSHER (BSR DONE)

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 22 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **NORMAL MASK** File = B12 : 600 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:23 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
0.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	B12 :600	0600	RSM PARKED AND OFF
0.1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	B12 :601	0600	PARK RSM
1.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	B12 :610	0600	INITIALIZE RSM STATION
1.1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :611	0400	WAITING FOR RKT
1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :612	0000	RSM CONVEYOR FORWARD
1.3	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :613	2400	EXTEND INDEX STOPS
1.4	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :614	2400	STOP RSM CONVEYOR
2.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	B12 :620	0600	STEP INITIALIZE
2.1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :621	0403	INDEX PUSHER TO #1 (FUZE)
2.2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :622	0403	SPRAY WATER ON
2.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :623	0401	EXTEND SHEAR
2.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :624	0401	RETRACT SHEAR
2.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :625	0401	SPRAY WATER OFF
3.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :630	0601	STEP INITIALIZE
3.1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :631	0601	RETRACT INDEX STOPS
3.2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :632	0601	WAIT FOR DFS GATE CYCLE
4.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :640	0601	STEP INITIALIZE
4.1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	1	B12 :641	0605	INDEX PUSHER TO #2
4.2	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	B12 :642	0405	SPRAY WATER ON
4.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :643	0401	EXTEND SHEAR
4.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :644	0401	RETRACT SHEAR
4.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :645	0401	SPRAY WATER OFF
5.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :650	0601	STEP INITIALIZE
5.1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	1	B12 :651	0609	INDEX PUSHER TO #3
5.2	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	B12 :652	0409	SPRAY WATER ON
5.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :653	0401	EXTEND SHEAR
5.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :654	0401	RETRACT SHEAR
5.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :655	0401	SPRAY WATER OFF
6.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :660	0601	STEP INITIALIZE
6.1	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	1	B12 :661	0611	INDEX PUSHER TO #4
6.2	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	B12 :662	0411	SPRAY WATER ON
6.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :663	0401	EXTEND SHEAR
6.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :664	0401	RETRACT SHEAR
6.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :665	0401	SPRAY WATER OFF
7.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :670	0601	STEP INITIALIZE
7.1	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	1	B12 :671	0621	INDEX PUSHER TO #5
7.2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	B12 :672	0421	SPRAY WATER ON
7.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :673	0401	EXTEND SHEAR
7.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :674	0401	RETRACT SHEAR
7.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :675	0401	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 22 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **NORMAL MASK** File = B12 : 600 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:23 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
7.6	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	B12 :676	0C01	WAIT FOR DFS GATE CYCLE
8.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :680	0601	STEP INITIALIZE
8.1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	1	B12 :681	0641	INDEX PUSHER TO #6
8.2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	B12 :682	0441	SPRAY WATER ON
8.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :683	0401	EXTEND SHEAR
8.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :684	0401	RETRACT SHEAR
8.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :685	0401	SPRAY WATER OFF
9.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :690	0601	STEP INITIALIZE
9.1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	B12 :691	0681	INDEX PUSHER TO #7
9.2	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	B12 :692	0481	SPRAY WATER ON
9.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :693	0401	EXTEND SHEAR
9.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :694	0401	RETRACT SHEAR
9.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :695	0401	SPRAY WATER OFF
9.6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :696	0401	WAIT FOR DFS GATE CYCLE
10.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	B12 :700	0601	STEP INITIALIZE
10.1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	B12 :701	0681	INDEX PUSHER TO #8
10.2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :702	0401	HOME PUSHER
10.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	B12 :703	0401	STOP PUSHER (DONE WITH RKTS)
11.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :710	0000	BSR PARKED (proj. except 8")
11.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :711	0000	PARK BSR
12.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :720	0000	INITIALIZE BSR (proj. except 8")
12.1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	B12 :721	1201	WAIT FOR BURSTER FROM PMD
12.2	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	B12 :722	0207	INDEX PUSHER TO #1 BSR CUT
12.3	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	B12 :723	0207	SPRAY WATER ON
12.4	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	B12 :724	0207	EXTEND SHEAR
12.5	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	B12 :725	0207	RETRACT SHEAR
12.6	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	B12 :726	0207	SPRAY WATER OFF
13.0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	B12 :730	0207	STEP INITIALIZE
13.1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	B12 :731	0206	INDEX PUSHER TO BURSTER DUMP
13.2	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	B12 :732	0206	HOME PUSHER
13.3	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	B12 :733	0206	STOP PUSHER (BSR DONE)
14.0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	B12 :740	0200	BSR PARKED (8" projectiles)
14.1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	B12 :741	0200	PARK BSR
15.0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	B12 :750	0200	INITIALIZE BSR (8" proj.)
15.1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	B12 :751	1200	WAIT FOR BURSTER FROM PMD
15.2	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	B12 :752	020E	INDEX PUSHER TO #1 BSR CUT
15.3	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :753	020F	SPRAY WATER ON
15.4	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :754	020F	EXTEND SHEAR
15.5	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :755	020F	RETRACT SHEAR
15.6	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :756	020F	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 22 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **NORMAL MASK** File = B12 : 600 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:23 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
16.0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :760	020F	STEP INITIALIZE
16.1	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :761	020F	INDEX PUSHER TO #2 BSR CUT (8")
16.2	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :762	020F	SPRAY WATER ON
16.3	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :763	020F	EXTEND SHEAR
16.4	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :764	020F	RETRACT SHEAR
16.5	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :765	020F	SPRAY WATER OFF
17.0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	B12 :770	020F	STEP INITIALIZE
17.1	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	B12 :771	020E	INDEX PUSHER TO DUMP BURSTER
17.2	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	B12 :772	020E	HOME PUSHER
17.3	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	B12 :773	020E	STOP PUSHER (BSR DONE)

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 23 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **BYPASS MASK** File = B12 : 800 N43 - Display Location

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:22 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP	17- RDS READY TO SEND ROCKET	16- SPARE	15- DFS GATE HAS CYCLED	14- DFS NORMAL	13- ROCKET FULLY FORWARD	12- ROCKET AT PUSHER	11- WATER SPRAY ON	10- SPARE	07- SHEAR RETRACTED	06- SHEAR EXTENDED	05- SPARE	04- SPARE	03- INDEX STOPS RETRACTED	02- INDEX STOPS EXTENDED	01- PUSHER AT COMMANDED POSITION	00- PUSHER HOME			
0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :800	FFFF	RSM PARKED AND OFF
0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :801	FFFF	PARK RSM
1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :810	FFFF	INITIALIZE RSM STATION
1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :811	FFFF	WAITING FOR RKT
1.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :812	FFFF	RSM CONVEYOR FORWARD
1.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :813	FFFF	EXTEND INDEX STOPS
1.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :814	FFFF	STOP RSM CONVEYOR
2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :820	FFFF	STEP INITIALIZE
2.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :821	FFFF	INDEX PUSHER TO #1 (FUZE)
2.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :822	FFFF	SPRAY WATER ON
2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :823	0000	EXTEND SHEAR
2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :824	0000	RETRACT SHEAR
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :825	0000	SPRAY WATER OFF
3.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :830	FFFF	STEP INITIALIZE
3.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :831	FFFF	RETRACT INDEX STOPS
3.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :832	FFFF	WAIT FOR DFS GATE CYCLE
4.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :840	FFFF	STEP INITIALIZE
4.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :841	FFFF	INDEX PUSHER TO #2
4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :842	FFFF	SPRAY WATER ON
4.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :843	FFFF	EXTEND SHEAR
4.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :844	FFFF	RETRACT SHEAR
4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :845	0000	SPRAY WATER OFF
5.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :850	FFFF	STEP INITIALIZE
5.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :851	FFFF	INDEX PUSHER TO #3
5.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :852	FFFF	SPRAY WATER ON
5.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :853	FFFF	EXTEND SHEAR
5.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :854	FFFF	RETRACT SHEAR
5.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :855	FFFF	SPRAY WATER OFF
6.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :860	FFFF	STEP INITIALIZE
6.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :861	FFFF	INDEX PUSHER TO #4
6.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :862	FFFF	SPRAY WATER ON
6.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :863	FFFF	EXTEND SHEAR
6.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :864	FFFF	RETRACT SHEAR
6.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :865	FFFF	SPRAY WATER OFF
7.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :870	FFFF	STEP INITIALIZE
7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :871	FFFF	INDEX PUSHER TO #5
7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :872	FFFF	SPRAY WATER ON
7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :873	FFFF	EXTEND SHEAR
7.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :874	FFFF	RETRACT SHEAR
7.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :875	FFFF	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 23 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **BYPASS MASK** File = B12 : 800 N43 - Display Location

17- RDS READY TO SEND ROCKET
16- SPARE
15- DFS GATE HAS CYCLED
14- DFS NORMAL
13- ROCKET FULLY FORWARD
12- ROCKET AT PUSHER
11- WATER SPRAY ON
10- SPARE
07- SHEAR RETRACTED
06- SHEAR EXTENDED
05- SPARE
04- SPARE
03- INDEX STOPS RETRACTED
02- INDEX STOPS EXTENDED
01- PUSHER AT COMMANDED POSITION
00- PUSHER HOME

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:22 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
7.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :876	FFFF	WAIT FOR DFS GATE CYCLE
8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :880	FFFF	STEP INITIALIZE
8.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :881	FFFF	INDEX PUSHER TO #6
8.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :882	FFFF	SPRAY WATER ON
8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :883	FFFF	EXTEND SHEAR
8.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :884	FFFF	RETRACT SHEAR
8.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :885	FFFF	SPRAY WATER OFF
9.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :890	FFFF	STEP INITIALIZE
9.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :891	FFFF	INDEX PUSHER TO #7
9.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :892	FFFF	SPRAY WATER ON
9.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :893	FFFF	EXTEND SHEAR
9.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :894	FFFF	RETRACT SHEAR
9.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :895	FFFF	SPRAY WATER OFF
9.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :896	FFFF	WAIT FOR DFS GATE CYCLE
10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :900	FFFF	STEP INITIALIZE
10.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :901	FFFF	INDEX PUSHER TO #8
10.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :902	FFFF	HOME PUSHER
10.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :903	FFFF	STOP PUSHER (DONE WITH RKTS)
11.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :910	FFFF	BSR PARKED (proj. except 8")
11.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :911	FFFF	PARK BSR
12.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :920	FFFF	INITIALIZE BSR (proj. except 8")
12.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :921	FFFF	WAIT FOR BURSTER FROM PMD
12.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :922	FFFF	INDEX PUSHER TO #1 BSR CUT
12.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :923	FFFF	SPRAY WATER ON
12.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :924	FFFF	EXTEND SHEAR
12.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :925	FFFF	RETRACT SHEAR
12.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :926	FFFF	SPRAY WATER OFF
13.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :930	FFFF	STEP INITIALIZE
13.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :931	FFFF	INDEX PUSHER TO BURSTER DUMP
13.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :932	FFFF	HOME PUSHER
13.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :933	FFFF	STOP PUSHER (BSR DONE)
14.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :940	FFFF	BSR PARKED (8" projectiles)
14.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :941	FFFF	PARK BSR
15.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :950	FFFF	INITIALIZE BSR (8" proj.)
15.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :951	FFFF	WAIT FOR BURSTER FROM PMD
15.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :952	FFFF	INDEX PUSHER TO #1 BSR CUT
15.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :953	FFFF	SPRAY WATER ON
15.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :954	FFFF	EXTEND SHEAR
15.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :955	FFFF	RETRACT SHEAR
15.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :956	FFFF	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 23 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **BYPASS MASK** File = B12 : 800 N43 - Display Location

17- RDS READY TO SEND ROCKET
16- SPARE
15- DFS GATE HAS CYCLED
14- DFS NORMAL
13- ROCKET FULLY FORWARD
12- ROCKET AT PUSHER
11- WATER SPRAY ON
10- SPARE
07- SHEAR RETRACTED
06- SHEAR EXTENDED
05- SPARE
04- SPARE
03- INDEX STOPS RETRACTED
02- INDEX STOPS EXTENDED
01- PUSHER AT COMMANDED POSITION
00- PUSHER HOME

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:22 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
16.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :960	FFFF	STEP INITIALIZE
16.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :961	FFFF	INDEX PUSHER TO #2 BSR CUT (8")
16.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :962	FFFF	SPRAY WATER ON
16.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :963	FFFF	EXTEND SHEAR
16.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :964	FFFF	RETRACT SHEAR
16.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :965	FFFF	SPRAY WATER OFF
17.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :970	FFFF	STEP INITIALIZE
17.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :971	FFFF	INDEX PUSHER TO DUMP BURSTER
17.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :972	FFFF	HOME PUSHER
17.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :973	FFFF	STOP PUSHER (BSR DONE)

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 23 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **BYPASS MASK** File = B12 : 1000 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:23 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1000	FFFF	RSM PARKED AND OFF
0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1001	FFFF	PARK RSM
1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1010	FFFF	INITIALIZE RSM STATION
1.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1011	FFFF	WAITING FOR RKT
1.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1012	FFFF	RSM CONVEYOR FORWARD
1.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1013	FFFF	EXTEND INDEX STOPS
1.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1014	FFFF	STOP RSM CONVEYOR
2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1020	FFFF	STEP INITIALIZE
2.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1021	FFFF	INDEX PUSHER TO #1 (FUZE)
2.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1022	FFFF	SPRAY WATER ON
2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1023	0000	EXTEND SHEAR
2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1024	0000	RETRACT SHEAR
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1025	0000	SPRAY WATER OFF
3.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1030	FFFF	STEP INITIALIZE
3.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1031	FFFF	RETRACT INDEX STOPS
3.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1032	FFFF	WAIT FOR DFS GATE CYCLE
4.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1040	FFFF	STEP INITIALIZE
4.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1041	FFFF	INDEX PUSHER TO #2
4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1042	FFFF	SPRAY WATER ON
4.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1043	FFFF	EXTEND SHEAR
4.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1044	FFFF	RETRACT SHEAR
4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1045	0000	SPRAY WATER OFF
5.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1050	FFFF	STEP INITIALIZE
5.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1051	FFFF	INDEX PUSHER TO #3
5.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1052	FFFF	SPRAY WATER ON
5.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1053	FFFF	EXTEND SHEAR
5.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1054	FFFF	RETRACT SHEAR
5.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1055	FFFF	SPRAY WATER OFF
6.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1060	FFFF	STEP INITIALIZE
6.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1061	FFFF	INDEX PUSHER TO #4
6.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1062	FFFF	SPRAY WATER ON
6.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1063	FFFF	EXTEND SHEAR
6.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1064	FFFF	RETRACT SHEAR
6.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1065	FFFF	SPRAY WATER OFF
7.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1070	FFFF	STEP INITIALIZE
7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1071	FFFF	INDEX PUSHER TO #5
7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1072	FFFF	SPRAY WATER ON
7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1073	FFFF	EXTEND SHEAR
7.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1074	FFFF	RETRACT SHEAR
7.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1075	FFFF	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 23 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **BYPASS MASK** File = B12 : 1000 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:23 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
7.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1076	FFFF	WAIT FOR DFS GATE CYCLE
8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1080	FFFF	STEP INITIALIZE
8.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1081	FFFF	INDEX PUSHER TO #6
8.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1082	FFFF	SPRAY WATER ON
8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1083	FFFF	EXTEND SHEAR
8.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1084	FFFF	RETRACT SHEAR
8.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1085	FFFF	SPRAY WATER OFF
9.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1090	FFFF	STEP INITIALIZE
9.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1091	FFFF	INDEX PUSHER TO #7
9.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1092	FFFF	SPRAY WATER ON
9.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1093	FFFF	EXTEND SHEAR
9.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1094	FFFF	RETRACT SHEAR
9.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1095	FFFF	SPRAY WATER OFF
9.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1096	FFFF	WAIT FOR DFS GATE CYCLE
10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1100	FFFF	STEP INITIALIZE
10.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1101	FFFF	INDEX PUSHER TO #8
10.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1102	FFFF	HOME PUSHER
10.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1103	FFFF	STOP PUSHER (DONE WITH RKTS)
11.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1110	FFFF	BSR PARKED (proj. except 8")
11.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1111	FFFF	PARK BSR
12.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1120	FFFF	INITIALIZE BSR (proj. except 8")
12.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1121	FFFF	WAIT FOR BURSTER FROM PMD
12.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1122	FFFF	INDEX PUSHER TO #1 BSR CUT
12.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1123	FFFF	SPRAY WATER ON
12.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1124	FFFF	EXTEND SHEAR
12.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1125	FFFF	RETRACT SHEAR
12.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1126	FFFF	SPRAY WATER OFF
13.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1130	FFFF	STEP INITIALIZE
13.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1131	FFFF	INDEX PUSHER TO BURSTER DUMP
13.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1132	FFFF	HOME PUSHER
13.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1133	FFFF	STOP PUSHER (BSR DONE)
14.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1140	FFFF	BSR PARKED (8" projectiles)
14.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1141	FFFF	PARK BSR
15.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1150	FFFF	INITIALIZE BSR (8" proj.)
15.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1151	FFFF	WAIT FOR BURSTER FROM PMD
15.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1152	FFFF	INDEX PUSHER TO #1 BSR CUT
15.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1153	FFFF	SPRAY WATER ON
15.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1154	FFFF	EXTEND SHEAR
15.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1155	FFFF	RETRACT SHEAR
15.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1156	FFFF	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 23 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **BYPASS MASK** File = B12 : 1000 N43 - Display Location

17- SPARE
16- SPARE
15- ROCKET TOO FAR FORWARD
14- BURSTER RECEIVED FROM PMD
13- AT POSITION #8 (not used)
12- RSM CONVEYOR RUNNING
11- PUSHER IN MOTION
10- PMD IN FEED/DISCH CYCLE
07- AT POSITION #7
06- AT POSITION #6
05- AT POSITION #5
04- AT POSITION #4
03- AT POSITION #3 (dump 8" burster)
02- AT POSITION #2 (dump burster execpt 8")
01- AT POSITION #1
00- BLAST GATES CLOSED

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:23 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
16.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1160	FFFF	STEP INITIALIZE
16.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1161	FFFF	INDEX PUSHER TO #2 BSR CUT (8")
16.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1162	FFFF	SPRAY WATER ON
16.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1163	FFFF	EXTEND SHEAR
16.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1164	FFFF	RETRACT SHEAR
16.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1165	FFFF	SPRAY WATER OFF
17.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1170	FFFF	STEP INITIALIZE
17.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1171	FFFF	INDEX PUSHER TO DUMP BURSTER
17.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1172	FFFF	HOME PUSHER
17.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	B12 :1173	FFFF	STOP PUSHER (BSR DONE)

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 25 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **OUTPUT** File = B12 : 1600 N43 - Display Location

17- SPARE
16- O.K. FOR RDS TO SEND ROCKET
15- O.K. FOR PMD TO SEND BURSTER
14- SPARE
13- 0
12- RETRACT SHEAR BLADE
11- EXTEND SHEAR BLADE
10- WATER SPRAY ON
07- SPARE
06- SPARE
05- INDEX PUSHER REVERSE
04- INDEX PUSHER FORWARD
03- CLOSE INDEX STOPS (Extend)
02- OPEN INDEX STOPS (Retract)
01- RSM CONVEYOR REVERSE
00- RSM CONVEYOR FORWARD

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:28		
STEP																	WORD ADRS	HEX VALUE	STEP DESCRIPTION
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1600	0000	RSM PARKED AND OFF
0.1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	B12 :1601	0204	PARK RSM
1.0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	B12 :1610	0424	INITIALIZE RSM STATION
1.1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1611	4404	WAITING FOR RKT
1.2	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	B12 :1612	4405	RSM CONVEYOR FORWARD
1.3	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	B12 :1613	0409	EXTEND INDEX STOPS
1.4	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	B12 :1614	0408	STOP RSM CONVEYOR
2.0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	B12 :1620	0408	STEP INITIALIZE
2.1	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	B12 :1621	0418	INDEX PUSHER TO #1 (FUZE)
2.2	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	B12 :1622	0508	SPRAY WATER ON
2.3	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	B12 :1623	0308	EXTEND SHEAR
2.4	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	B12 :1624	0508	RETRACT SHEAR
2.5	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	B12 :1625	0408	SPRAY WATER OFF
3.0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	B12 :1630	0408	STEP INITIALIZE
3.1	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	B12 :1631	0484	RETRACT INDEX STOPS
3.2	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1632	0404	WAIT FOR DFS GATE CYCLE
4.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1640	0404	STEP INITIALIZE
4.1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	B12 :1641	0414	INDEX PUSHER TO #2
4.2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1642	0504	SPRAY WATER ON
4.3	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	B12 :1643	0304	EXTEND SHEAR
4.4	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1644	0504	RETRACT SHEAR
4.5	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1645	0404	SPRAY WATER OFF
5.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1650	0404	STEP INITIALIZE
5.1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	B12 :1651	0414	INDEX PUSHER TO #3
5.2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1652	0504	SPRAY WATER ON
5.3	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	B12 :1653	0304	EXTEND SHEAR
5.4	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1654	0504	RETRACT SHEAR
5.5	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1655	0404	SPRAY WATER OFF
6.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1660	0404	STEP INITIALIZE
6.1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	B12 :1661	0414	INDEX PUSHER TO #4
6.2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1662	0504	SPRAY WATER ON
6.3	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	B12 :1663	0304	EXTEND SHEAR
6.4	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1664	0504	RETRACT SHEAR
6.5	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1665	0404	SPRAY WATER OFF
7.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1670	0404	STEP INITIALIZE
7.1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	B12 :1671	0414	INDEX PUSHER TO #5
7.2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1672	0504	SPRAY WATER ON
7.3	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	B12 :1673	0304	EXTEND SHEAR
7.4	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1674	0504	RETRACT SHEAR
7.5	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1675	0404	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 25 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **OUTPUT** File = B12 : 1600 N43 - Display Location

17- SPARE
16- O.K. FOR RDS TO SEND ROCKET
15- O.K. FOR PMD TO SEND BURSTER
14- SPARE
13- 0
12- RETRACT SHEAR BLADE
11- EXTEND SHEAR BLADE
10- WATER SPRAY ON
07- SPARE
06- SPARE
05- INDEX PUSHER REVERSE
04- INDEX PUSHER FORWARD
03- CLOSE INDEX STOPS (Extend)
02- OPEN INDEX STOPS (Retract)
01- RSM CONVEYOR REVERSE
00- RSM CONVEYOR FORWARD

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:28 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
7.6	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	B12 :1676	0C04	WAIT FOR DFS GATE CYCLE
8.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1680	0404	STEP INITIALIZE
8.1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	B12 :1681	0414	INDEX PUSHER TO #6
8.2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1682	0504	SPRAY WATER ON
8.3	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	B12 :1683	0304	EXTEND SHEAR
8.4	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1684	0504	RETRACT SHEAR
8.5	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1685	0404	SPRAY WATER OFF
9.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1690	0404	STEP INITIALIZE
9.1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	B12 :1691	0414	INDEX PUSHER TO #7
9.2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1692	0504	SPRAY WATER ON
9.3	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	B12 :1693	0304	EXTEND SHEAR
9.4	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	B12 :1694	0504	RETRACT SHEAR
9.5	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1695	0404	SPRAY WATER OFF
9.6	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	B12 :1696	0C04	WAIT FOR DFS GATE CYCLE
10.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1700	0404	STEP INITIALIZE
10.1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	B12 :1701	0414	INDEX PUSHER TO #8
10.2	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	B12 :1702	0424	HOME PUSHER
10.3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	B12 :1703	0404	STOP PUSHER (DONE WITH RKTS)
11.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1710	0000	BSR PARKED (proj. except 8")
11.1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	B12 :1711	0200	PARK BSR
12.0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	B12 :1720	0420	INITIALIZE BSR (proj. except 8")
12.1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1721	2400	WAIT FOR BURSTER FROM PMD
12.2	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	B12 :1722	0410	INDEX PUSHER TO #1 BSR CUT
12.3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	B12 :1723	0500	SPRAY WATER ON
12.4	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	B12 :1724	0300	EXTEND SHEAR
12.5	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	B12 :1725	0500	RETRACT SHEAR
12.6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1726	0400	SPRAY WATER OFF
13.0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1730	0400	STEP INITIALIZE
13.1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	B12 :1731	0410	INDEX PUSHER TO BURSTER DUMP
13.2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	B12 :1732	0420	HOME PUSHER
13.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1733	0400	STOP PUSHER (BSR DONE)
14.0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	B12 :1740	0200	BSR PARKED (8" projectiles)
14.1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	B12 :1741	0420	PARK BSR
15.0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1750	2400	INITIALIZE BSR (8" proj.)
15.1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	B12 :1751	0410	WAIT FOR BURSTER FROM PMD
15.2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1752	0400	INDEX PUSHER TO #1 BSR CUT
15.3	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	B12 :1753	0300	SPRAY WATER ON
15.4	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	B12 :1754	0500	EXTEND SHEAR
15.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1755	0400	RETRACT SHEAR
15.6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1756	0400	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 25 Datatable Word (1 or 2) = **1** REV - 1A C142 - Minor Step Location

Rocket Shear Station **OUTPUT** File = B12 : 1600 N43 - Display Location

17- SPARE
16- O.K. FOR RDS TO SEND ROCKET
15- O.K. FOR PMD TO SEND BURSTER
14- SPARE
13- 0
12- RETRACT SHEAR BLADE
11- EXTEND SHEAR BLADE
10- WATER SPRAY ON
07- SPARE
06- SPARE
05- INDEX PUSHER REVERSE
04- INDEX PUSHER FORWARD
03- CLOSE INDEX STOPS (Extend)
02- OPEN INDEX STOPS (Retract)
01- RSM CONVEYOR REVERSE
00- RSM CONVEYOR FORWARD

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:28 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
16.0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	B12 :1760	0410	STEP INITIALIZE
16.1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1761	0400	INDEX PUSHER TO #2 BSR CUT (8")
16.2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	B12 :1762	0300	SPRAY WATER ON
16.3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	B12 :1763	0500	EXTEND SHEAR
16.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1764	0400	RETRACT SHEAR
16.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1765	0400	SPRAY WATER OFF
17.0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	B12 :1770	0410	STEP INITIALIZE
17.1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1771	0400	INDEX PUSHER TO DUMP BURSTER
17.2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1772	0400	HOME PUSHER
17.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	B12 :1773	0400	STOP PUSHER (BSR DONE)

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 25 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **OUTPUT** File = B12 : 1800 N43 - Display Location

17- LAST SEQUENCER STEP
16- LAST SUB STEP
15- REPEAT STEP PERMISSION
14- BYPASS PERMISSION
13- GO TO POSITION #8 (not used)
12- GO TO POSITION #7 (not used)
11- GO TO POSITION #6 (not used)
10- GO TO POSITION #5 (not used)
07- GO TO POSITION #4 (not used)
06- GO TO POSITION #3 (not used)
05- GO TO POSITION #2 (not used)
04- GO TO POSITION #1 (not used)
03- SPARE
02- SPARE
01- SPARE
00- RSM IN SHEAR CYCLE

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:29 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1800	0000	RSM PARKED AND OFF
0.1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1801	4000	PARK RSM
1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1810	0000	INITIALIZE RSM STATION
1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1811	0000	WAITING FOR RKT
1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1812	0000	RSM CONVEYOR FORWARD
1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1813	0000	EXTEND INDEX STOPS
1.4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1814	4000	STOP RSM CONVEYOR
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1820	0000	STEP INITIALIZE
2.1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	B12 :1821	0010	INDEX PUSHER TO #1 (FUZE)
2.2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1822	0011	SPRAY WATER ON
2.3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1823	0011	EXTEND SHEAR
2.4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1824	0011	RETRACT SHEAR
2.5	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1825	4011	SPRAY WATER OFF
3.0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1830	0011	STEP INITIALIZE
3.1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1831	0011	RETRACT INDEX STOPS
3.2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1832	4011	WAIT FOR DFS GATE CYCLE
4.0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1840	0011	STEP INITIALIZE
4.1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1841	0023	INDEX PUSHER TO #2
4.2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1842	0023	SPRAY WATER ON
4.3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1843	0023	EXTEND SHEAR
4.4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1844	0023	RETRACT SHEAR
4.5	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1845	4023	SPRAY WATER OFF
5.0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1850	0023	STEP INITIALIZE
5.1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	B12 :1851	0043	INDEX PUSHER TO #3
5.2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	B12 :1852	0043	SPRAY WATER ON
5.3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	B12 :1853	0043	EXTEND SHEAR
5.4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	B12 :1854	0043	RETRACT SHEAR
5.5	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	1	B12 :1855	4043	SPRAY WATER OFF
6.0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	B12 :1860	0043	STEP INITIALIZE
6.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	B12 :1861	0083	INDEX PUSHER TO #4
6.2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	B12 :1862	0083	SPRAY WATER ON
6.3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	B12 :1863	0083	EXTEND SHEAR
6.4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	B12 :1864	0083	RETRACT SHEAR
6.5	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	1	B12 :1865	4083	SPRAY WATER OFF
7.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	B12 :1870	0083	STEP INITIALIZE
7.1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	B12 :1871	0103	INDEX PUSHER TO #5
7.2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	B12 :1872	0103	SPRAY WATER ON
7.3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	B12 :1873	0103	EXTEND SHEAR
7.4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	B12 :1874	0103	RETRACT SHEAR
7.5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	B12 :1875	0103	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 25 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **OUTPUT** File = B12 : 1800 N43 - Display Location

17- LAST SEQUENCER STEP
16- LAST SUB STEP
15- REPEAT STEP PERMISSION
14- BYPASS PERMISSION
13- GO TO POSITION #8 (not used)
12- GO TO POSITION #7 (not used)
11- GO TO POSITION #6 (not used)
10- GO TO POSITION #5 (not used)
07- GO TO POSITION #4 (not used)
06- GO TO POSITION #3 (not used)
05- GO TO POSITION #2 (not used)
04- GO TO POSITION #1 (not used)
03- SPARE
02- SPARE
01- SPARE
00- RSM IN SHEAR CYCLE

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:29 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
7.6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	B12 :1876	4001	WAIT FOR DFS GATE CYCLE
8.0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	B12 :1880	0103	STEP INITIALIZE
8.1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	B12 :1881	0203	INDEX PUSHER TO #6
8.2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	B12 :1882	0203	SPRAY WATER ON
8.3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	B12 :1883	0203	EXTEND SHEAR
8.4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	B12 :1884	0203	RETRACT SHEAR
8.5	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	B12 :1885	4203	SPRAY WATER OFF
9.0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	B12 :1890	0203	STEP INITIALIZE
9.1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :1891	0403	INDEX PUSHER TO #7
9.2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :1892	0403	SPRAY WATER ON
9.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :1893	0403	EXTEND SHEAR
9.4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :1894	0403	RETRACT SHEAR
9.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :1895	0403	SPRAY WATER OFF
9.6	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :1896	4403	WAIT FOR DFS GATE CYCLE
10.0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	B12 :1900	0403	STEP INITIALIZE
10.1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	B12 :1901	0803	INDEX PUSHER TO #8
10.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1902	0000	HOME PUSHER
10.3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1903	8000	STOP PUSHER (DONE WITH RKTS)
11.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1910	0000	BSR PARKED (proj. except 8")
11.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1911	0000	PARK BSR
12.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1920	0000	INITIALIZE BSR (proj. except 8")
12.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1921	0000	WAIT FOR BURSTER FROM PMD
12.2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1922	0013	INDEX PUSHER TO #1 BSR CUT
12.3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1923	0013	SPRAY WATER ON
12.4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1924	0013	EXTEND SHEAR
12.5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1925	0013	RETRACT SHEAR
12.6	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1926	4013	SPRAY WATER OFF
13.0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	B12 :1930	0011	STEP INITIALIZE
13.1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	B12 :1931	0021	INDEX PUSHER TO BURSTER DUMP
13.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1932	0000	HOME PUSHER
13.3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1933	8000	STOP PUSHER (BSR DONE)
14.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1940	0000	BSR PARKED (8" projectiles)
14.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1941	0000	PARK BSR
15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1950	0000	INITIALIZE BSR (8" proj.)
15.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1951	0000	WAIT FOR BURSTER FROM PMD
15.2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1952	0013	INDEX PUSHER TO #1 BSR CUT
15.3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1953	0013	SPRAY WATER ON
15.4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1954	0013	EXTEND SHEAR
15.5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1955	0013	RETRACT SHEAR
15.6	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1956	4013	SPRAY WATER OFF

Programmatic Process FAWB - ANCDF Line A — January-7-04

Rocket System - RSA File Name: RSM_101A.XLS Cntl - ANC101A C141 - Major Step Counter

Pointer Number: 25 Datatable Word (1 or 2) = **2** REV - 1A C142 - Minor Step Location

Rocket Shear Station **OUTPUT** File = B12 : 1800 N43 - Display Location

17- LAST SEQUENCER STEP
16- LAST SUB STEP
15- REPEAT STEP PERMISSION
14- BYPASS PERMISSION
13- GO TO POSITION #8 (not used)
12- GO TO POSITION #7 (not used)
11- GO TO POSITION #6 (not used)
10- GO TO POSITION #5 (not used)
07- GO TO POSITION #4 (not used)
06- GO TO POSITION #3 (not used)
05- GO TO POSITION #2 (not used)
04- GO TO POSITION #1 (not used)
03- SPARE
02- SPARE
01- SPARE
00- RSM IN SHEAR CYCLE

BITS	17	16	15	14	13	12	11	10	07	06	05	04	03	02	01	00	B10:29 WORD ADRS	HEX VALUE	STEP DESCRIPTION
STEP																			
16.0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	B12 :1960	0013	STEP INITIALIZE
16.1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1961	0023	INDEX PUSHER TO #2 BSR CUT (8")
16.2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1962	0023	SPRAY WATER ON
16.3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	B12 :1963	0023	EXTEND SHEAR
16.4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	B12 :1964	0021	RETRACT SHEAR
16.5	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	1	B12 :1965	4025	SPRAY WATER OFF
17.0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	B12 :1970	0025	STEP INITIALIZE
17.1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	B12 :1971	0041	INDEX PUSHER TO DUMP BURSTER
17.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1972	0000	HOME PUSHER
17.3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B12 :1973	8000	STOP PUSHER (BSR DONE)

APPENDIX E

Operator Screens

Appendix E contains the Advisor PC screens associated with operation and control of the RHS based on *ANCDF and UMCDF control code from July 2003, and PBCDF and TOCDF control code from September 2003*. Table E.1 provides an index to the screens.

Table E.1 RHS Advisor PC Screens

Figure #	Advisor PC Screen Name	Process Screen
E-1	*ANCDF Rocket Feed Line A*	*RFA*
E-2	*PBCDF Rocket Feed Line A*	*RFA*
E-3	*TOCDF Rocket Feed Line A*	*RFA*
E-4	*UMCDF Rocket Feed Line A*	*RFA*
E-5	*ANCDF Rocket Feed Line B*	*RFB*
E-6	*PBCDF Rocket Feed Line B*	*RFB*
E-7	*TOCDF Rocket Feed Line B*	*RFB*
E-8	*UMCDF Rocket Feed Line B*	*RFB*
E-9	*ANCDF Rocket Demil Line A*	*RDA*
E-10	*PBCDF Rocket Demil Line A*	*RDA*
E-11	*TOCDF Rocket Demil Line A*	*RDA*
E-12	*UMCDF Rocket Demil Line A*	*RDA*
E-13	*ANCDF Rocket Demil Line B*	*RDB*
E-14	*PBCDF Rocket Demil Line B*	*RDB*
E-15	*TOCDF Rocket Demil Line B*	*RDB*
E-16	*UMCDF Rocket Demil Line B*	*RDB*
E-17	*ANCDF Rocket Line Initialize*	*RLI*
E-18	*PBCDF Rocket Line Initialize*	*RLI*
E-19	*TOCDF Rocket Line Initialize*	*RLI*
E-20	*UMCDF Rocket Line Initialize*	*RLI*
E-21	*ANCDF Explosive Containment Room*	*ECR*
E-22	*PBCDF Explosive Containment Room*	*ECR*
E-23	*TOCDF Explosive Containment Room*	*ECR*
E-24	*UMCDF Explosive Containment Room*	*ECR*

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Advisor PC Screen Rocket Feed Line A – RFA

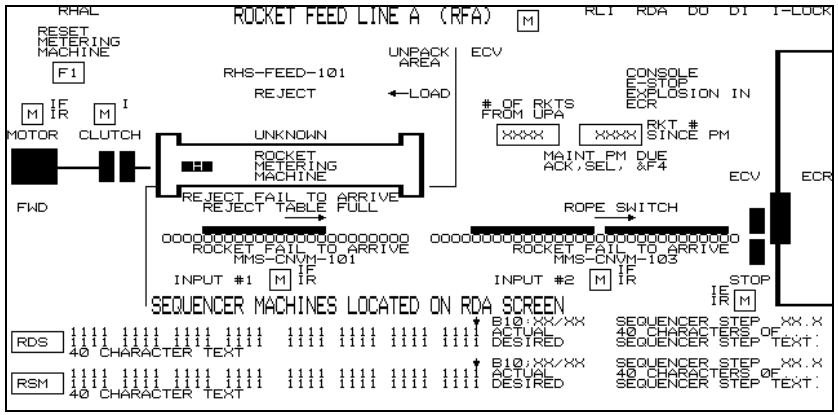

Figure E-1 ANCDF Advisor PC Screen RFA

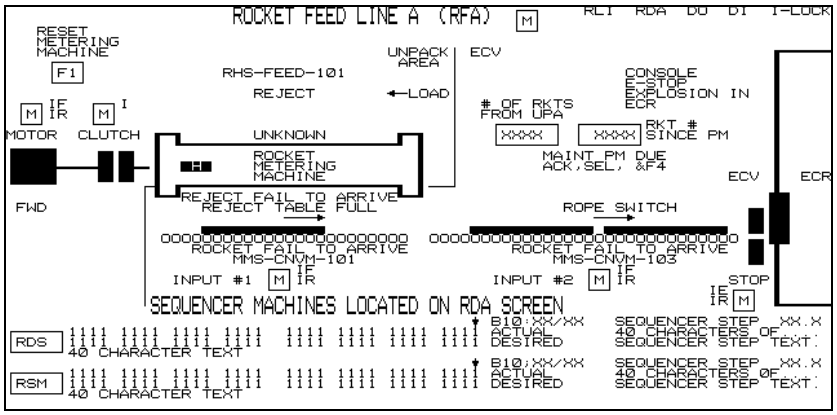

Figure E-2 PBCDF Advisor PC Screen RFA

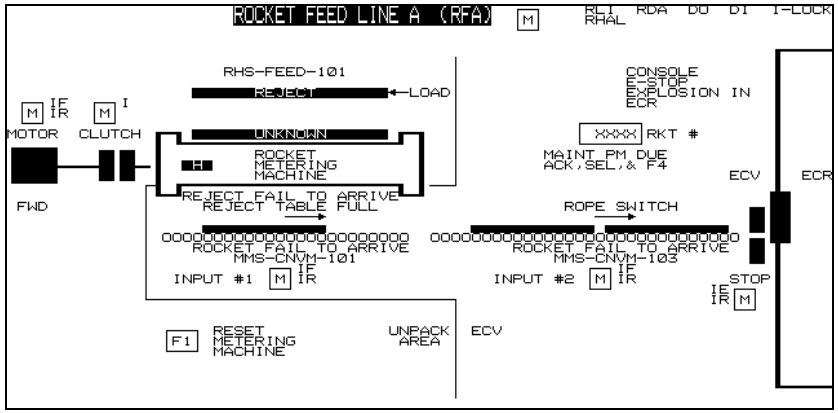

Figure E-3 TOCDF Advisor PC Screen RFA

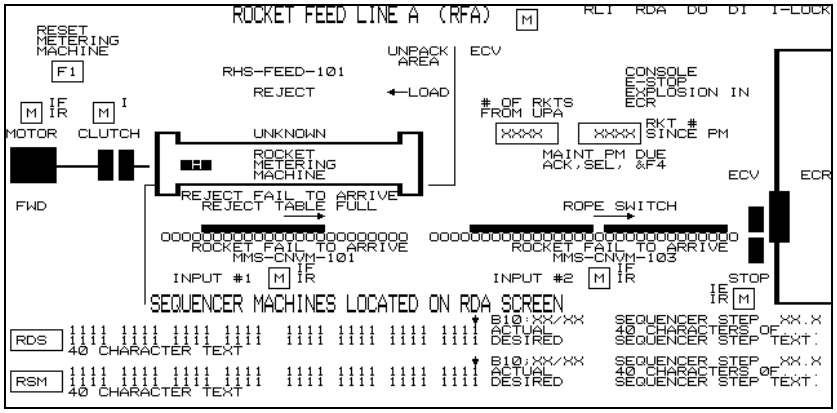

Figure E-4 UMCDF Advisor PC Screen RFA

Advisor PC Screen Rocket Feed Line B – RFB

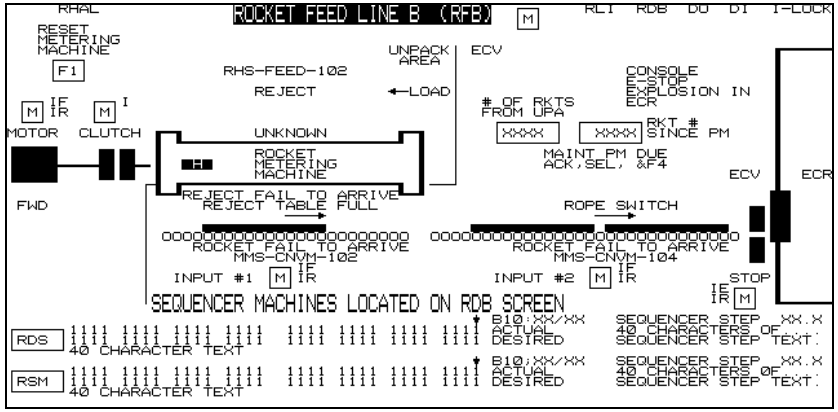

Figure E-5 ANCDF Advisor PC Screen RFB

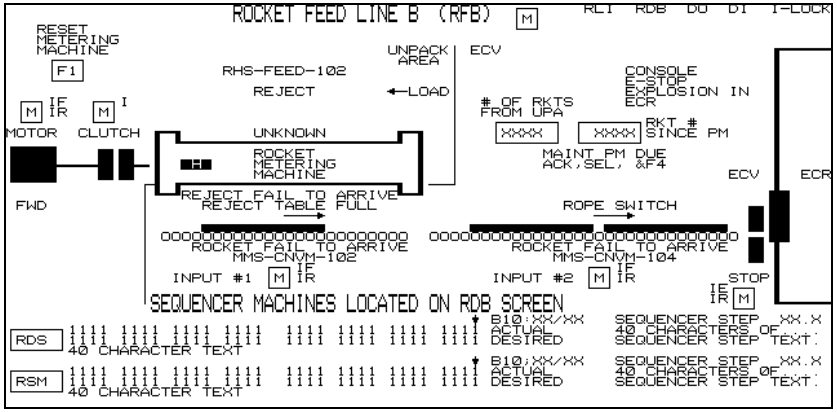

Figure E-6 PBCDF Advisor PC Screen RFB

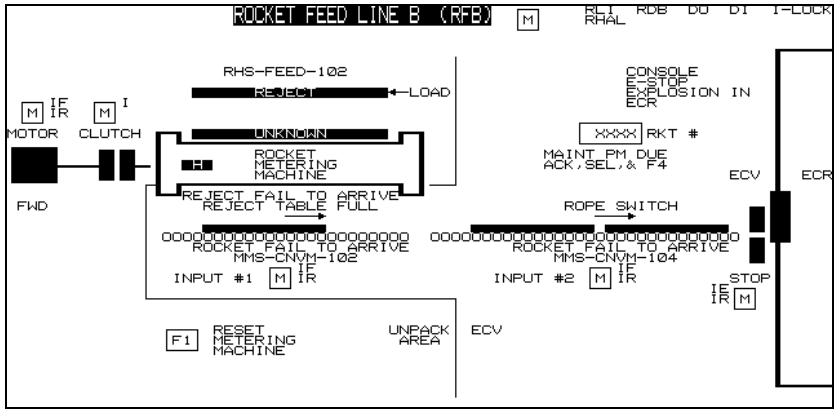

Figure E-7 TOCDF Advisor PC Screen RFB

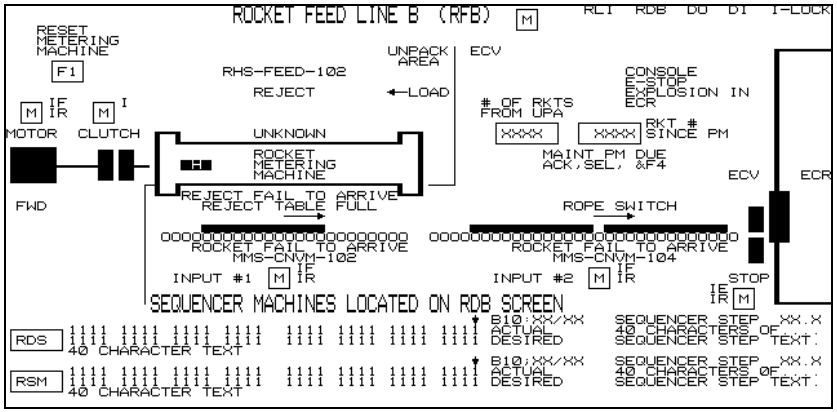

Figure E-8 UMCDF Advisor PC Screen RFB

Advisor PC Screen Rocket Demil Line A – RDA

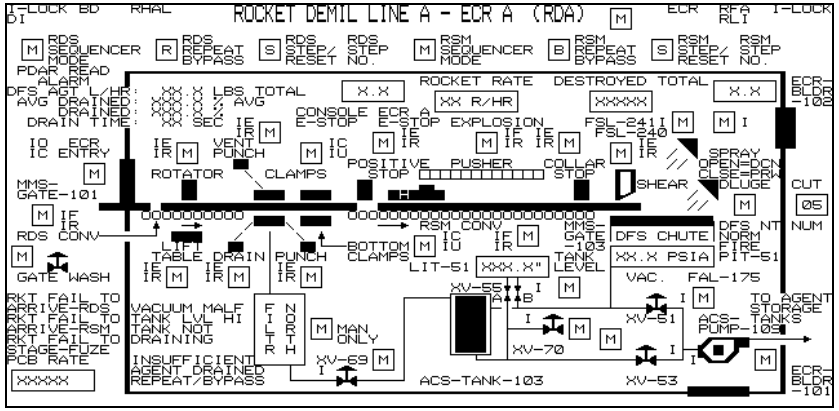

Figure E-9 ANCDF Advisor PC Screen RDA

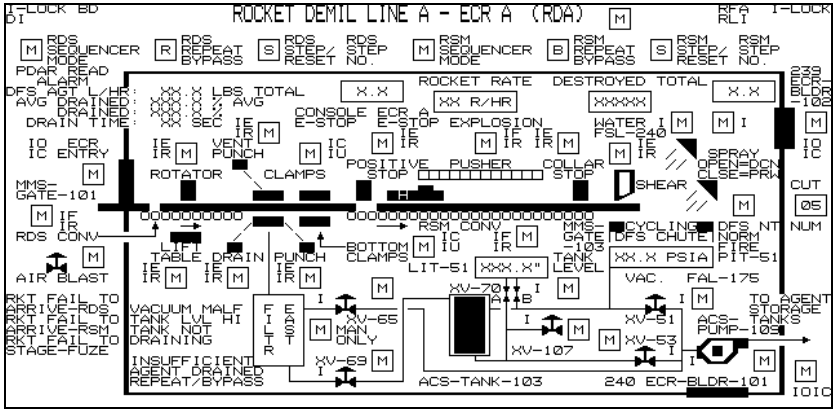

Figure E-10 PBCDF Advisor PC Screen RDA

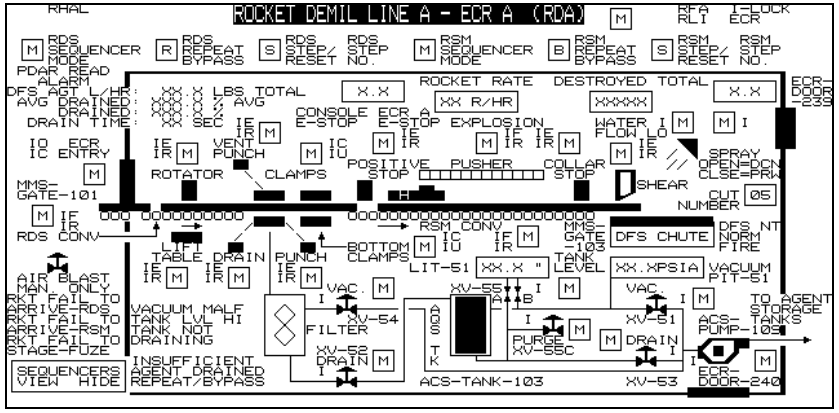

Figure E-11 TOCDF Advisor PC Screen RDA

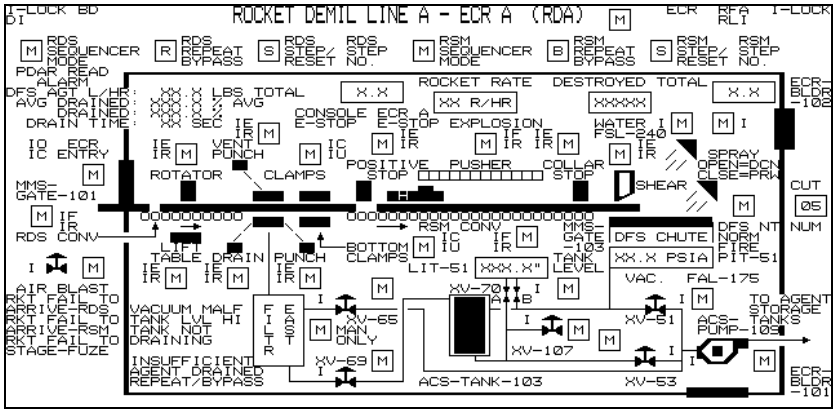

Figure E-12 UMCDF Advisor PC Screen RDA

Advisor PC Screen Rocket Demil Line B – RDB

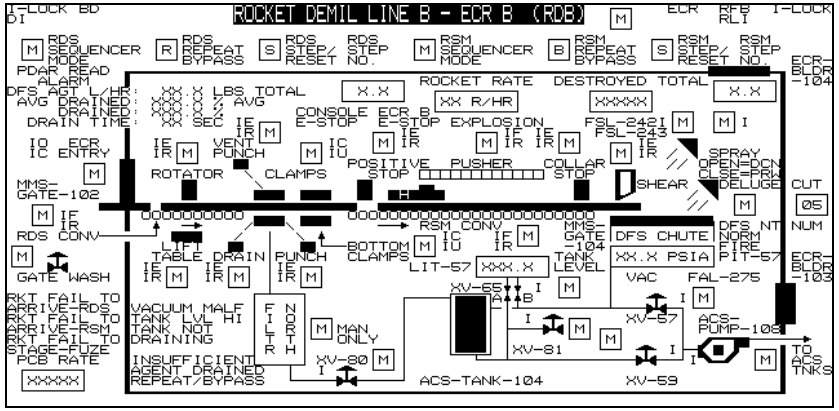

Figure E-13 ANCDF Advisor PC Screen RDB

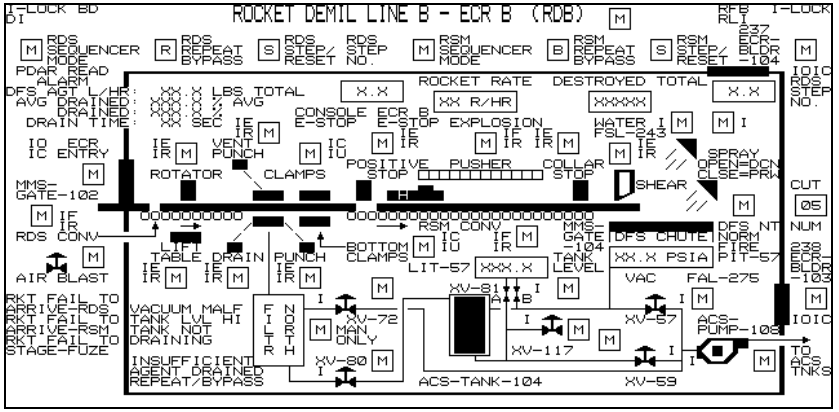

Figure E-14 PBCDF Advisor PC Screen RDB

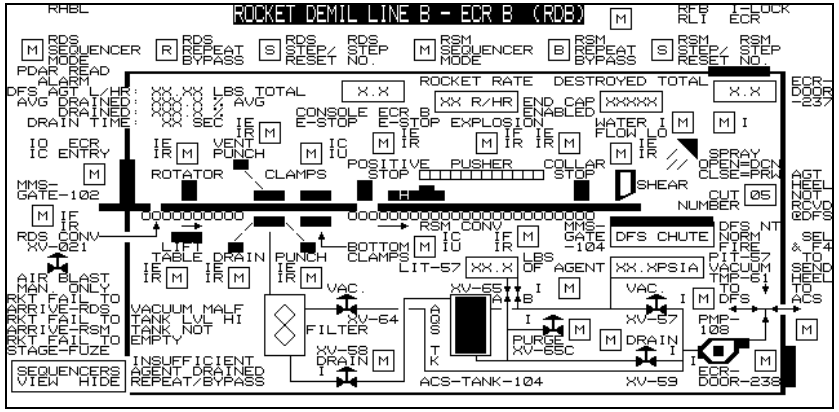

Figure E-15 TOCDF Advisor PC Screen RDB

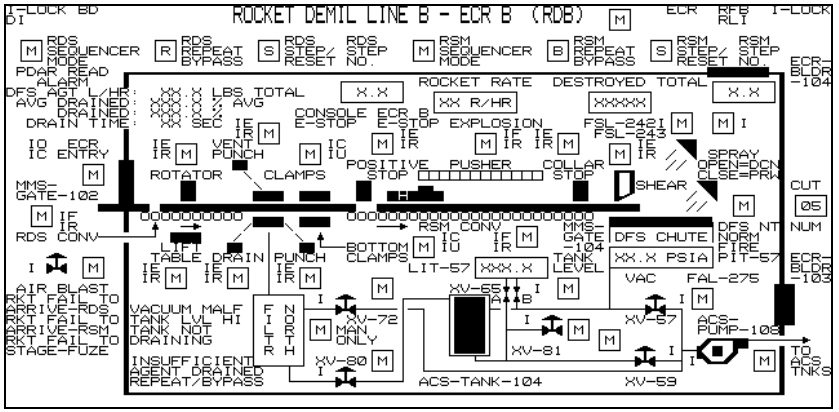

Figure E-16 UMCDF Advisor PC Screen RDB

Advisor PC Screen Rocket Line Initialize – RLI

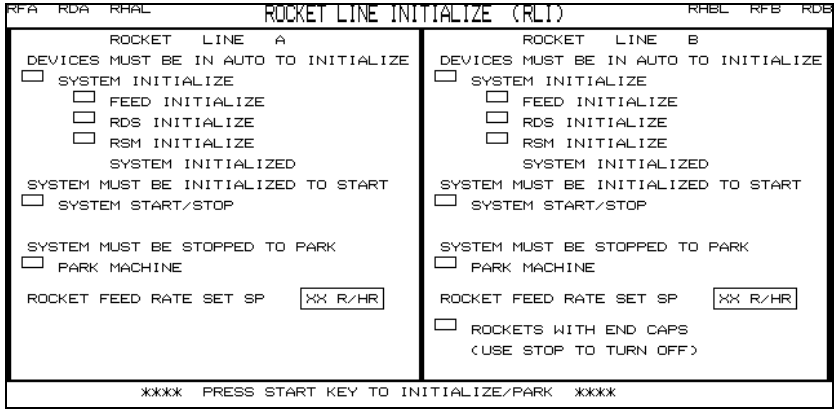

Figure E-17 ANCDF Advisor PC Screen RLI

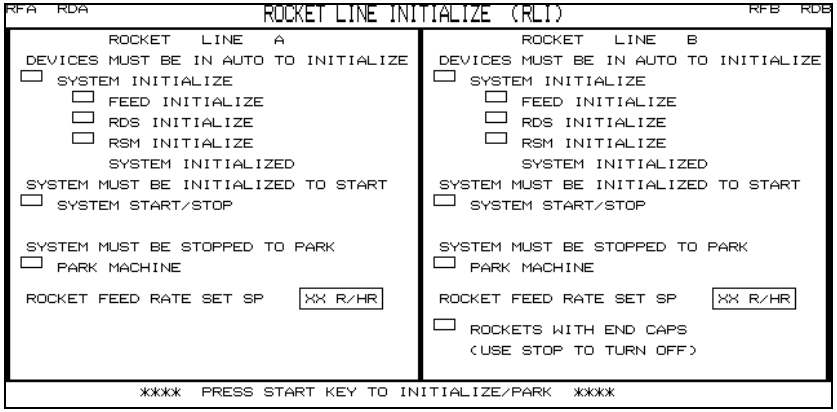

Figure E-18 PBCDF Advisor PC Screen RLI

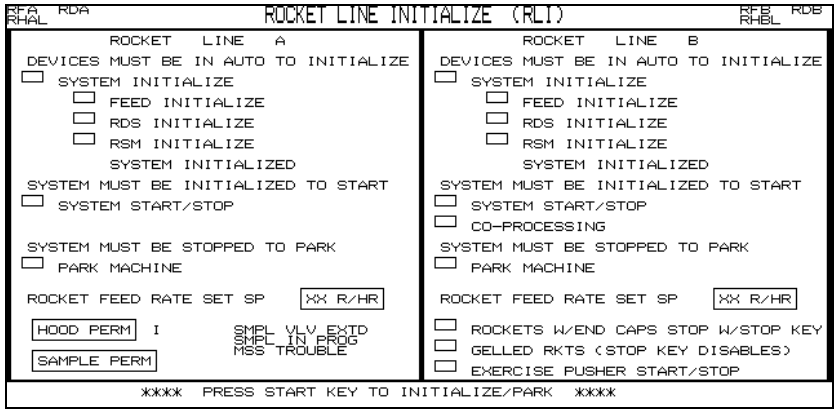

Figure E-19 TOCDF Advisor PC Screen RLI

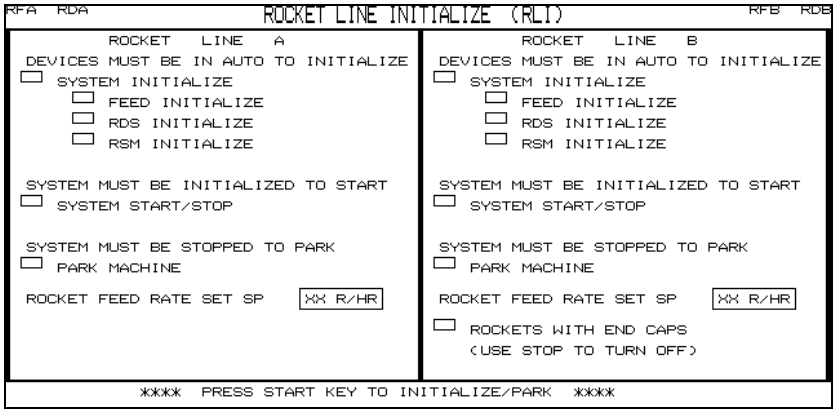

Figure E-20 UMCDF Advisor PC Screen RLI

Advisor PC Screen Explosive Containment Room – ECR

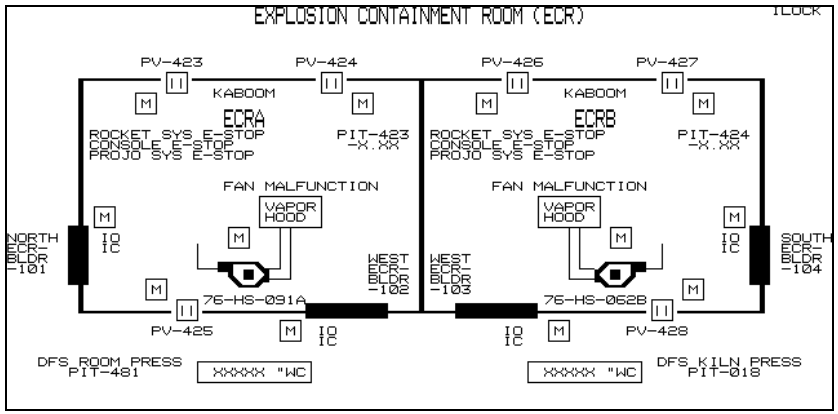

Figure E-21 ANCDF Advisor PC Screen ECR

The current PBCDF code does not have screen ECR (see FAWB Note B-19).

Figure E-22 PBCDF Advisor PC Screen ECR

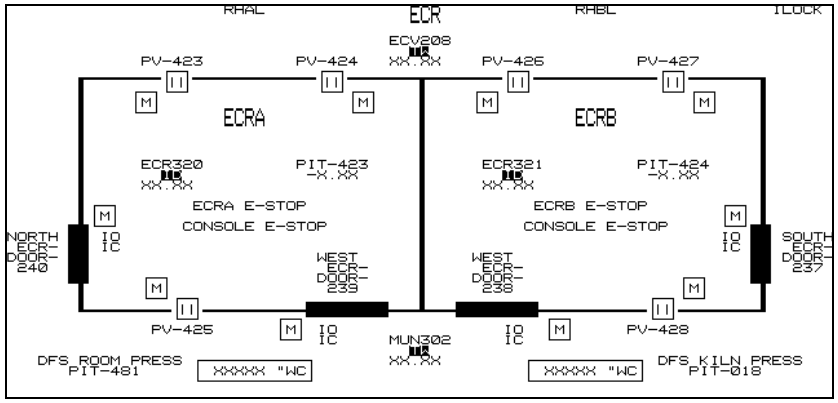

Figure E-23 TOCDF Advisor PC Screen ECR

The current UMCDF code does not have screen ECR. (see FAWB Note B-19).

Figure E-24 UMCDF Advisor PC Screen ECR

APPENDIX F

Instrument Ranges

Table F.1 shows the *RHS system* instrument data extracted from the TOCDF Loveland calibration database as of *August 2000. Instrument calibration databases for other sites were not available when this draft was prepared.* Not all instrument tag numbers listed are part of the design at ANCDF, PBCDF, and UMCDF. *When instrument calibration databases for other sites are available, the instrument ranges will be added to this appendix.*

Table F.1 RHS Instrumentation in TOCDF Loveland Instrument Calibration Database

INSTRUMENT TAG	RCRA	INPUT			OUTPUT			SET POINT	LOOP DEFINITION
		LOW	HI	UNIT	LOW	HI	UNIT		
03-XSH-127A	No	0	1	psig	0	0		0.5	ECR A Explosion
03-XSH-127B	No	0	1	psig	0	0		0.5	ECR A Explosion
03-XSH-227A	No	0	1	psig	0	0		0.5	ECR B Explosion
03-XSH-227B	No	0	1	psig	0	0		0.5	ECR B Explosion
51-LIT-051	Yes	0	30	in. wc.	4	20	mA		ACS-TANK-103 Level
51-PIT-051	No	0	15	psi	4	20	mA		ACS-TANK-103 Pressure
51-LIT-057	Yes	0	30	in. wc.	4	20	mA		ACS-TANK-104 Level
51-PIT-057	No	0	15	psi	4	20	mA		ACS-TANK-104 Pressure

APPENDIX G

Intercontroller Communications

RHS operations are controlled by the same two PLCs at all four sites. ICS-CONR-101A controls operations associated with rocket line A and ICS-CONR-104A controls operations associated with rocket line B.

Table G.1 lists the digital intercontroller inputs and outputs (DICIs/DICOs) for ICS-CONR-101A, and Table G.2 lists the DICIs/DICOs for ICS-CONR-104A. The DICOs listed are based on the *ANCDF and UMCDF control code as of July 2003, and PBCDF and* TOCDF code as of *September 2003*.

Table G.1 RHS Line A DICIs/DICOs (ICS-CONR-101A)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
101A	003	103	101B	051	00	*(Not @ PB)* PA2 Screen Status		Auto	1 *0@UM*
101A	003	103	101B	051	01	*(Not @ PB)* PMD Auto Run		Auto	0
101A	003	103	101B	051	02	*(Not @ PB)* PMD Blast Gates Closed	Don't Chop		0
101A	003	103	101B	051	03	*(Not @ PB)* PMD in Feed/ Discharge Cycle		Don't Chop	0
101A	003	103	101B	051	04	*(Not @ PB)* Initialize BSR		Initialize	1
101A	003	103	101B	051	05	*(Not @ PB)* Park BSR		Park	0
101A	003	103	101B	051	10	*(Not @ PB)* OK to Run After Horn Honk		OK to run	0
101A	*003*	*103*	*101B*	*051*	*12*	*(UM only) 03-XS-110 PMD System ECR A E-Stop*		*E-Stop*	*0*
101A	004	104	101B	052	00	*(Not @ PB)* ECR A Explosion		Explosion	0
101A	005	105	102	051	00	ECR A Fire Alarm		Alarm	0
101A	013	113	104A	051	00	Line B ECR Explosion	Explosion	Normal	0
101A	*013*	*113*	*104A*	*051*	*01*	*(Not @ TE) Line B Discharge Chute Fire*	*OK*	*Fire*	*0 1@UM*
101A	*013*	*113*	*104A*	*051*	*01*	*(TE only) Priority GelRkt Shear I-Lock over Brstrs*	*I-Lock*		*0*

Table G.1 (Cont'd)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
101A	017	117	105	051	00	Plant Air Available		Available	0
101A	017	117	105	051	01	Instrument Air Available		Available	0
101A	017	117	105	051	02	ECR A Man Doors Closed and Locked		Closed and Locked	1
101A	017	117	105	051	03	Hydraulic System for RSM/BSR & MIN Normal		Normal	0
101A	017	117	105	051	04	Hydraulic System for MMS-GATE-101 Normal		Normal	0
101A	*017*	*117*	*105*	*051*	*10*	*(Not @ TE) ECR A Man Door 102 Closed and Locked*		*Closed and Locked*	*0*
101A	*017*	*117*	*105*	*051*	*11*	*(Not @ TE) ECR A Man Door 101 Closed and Locked*		*Closed and Locked*	*0*
101A	019	119	106	051	00	Sump Pump Enable	Enabled	Inhibited	1
101A	019	119	106	051	01	OK to Pump Agent		OK	0
101A	019	119	106	051	02	OK to Start Processing		OK	0
101A	019	119	106	051	03	OK to Punch		OK	0
101A	025	125	109	051	01	Elec. System Power Loss		Power Lost	0
101A	025	125	109	051	02	Start Essential Power Equip.		Start	0
101A	027	127	110	051	00	HVAC Normal		Normal	0
101A	027	127	110	051	01	ECR Air Pressure Normal	Normal	Alarm	0
101A	027	127	110	051	05	Demil Counter Reset		Reset	0
101A	031	131	112	051	00	DFS Furnace Normal		Normal	0
101A	*031*	*131*	*112*	*051*	*01*	*(Not @ TE) DFS-GATE-101 Closed*		*Closed*	*0*
101A	*031*	*131*	*112*	*051*	*02*	*(Not @ TE) MMS-GATE-103, DFS-GATE-101 Open-Close Cycle*		*Cycled*	*0*
101A	*031*	*131*	*112*	*051*	*02*	*(TE only) MMS-GATE-103 Open*		Open	*0*
101A	031	131	112	051	03	DFS rkts/hr *or projos/hr* prealarm		Alarm	0
101A	031	131	112	051	04	DFS Agent lb/hr prealarm		Alarm	0

Table G.1 (Cont'd)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
101A	*031*	*131*	*112*	*051*	*05*	*(UM only) Line A Disch Chute Fire*	*OK*	*Fire*	*1*
101A	*031*	*131*	*112*	*051*	*06*	*(AN/PB only) Line A Discharge Chute Fire*	*OK*	*Fire*	*0*
101A	*031*	*131*	*112*	*051*	*07*	*(AN only) DFS Stop Feed Place in Manual for 90 Seconds*		*Manual*	*0*
101A	*031*	*131*	*112*	*051*	*07*	*(TE only) PMD Idle Gate Spray Activated*		*Start Spray*	*0*
101A	*031*	*131*	*112*	*051*	*10*	*(AN only) MMS-GATE-103 Gate Wash Down Request*		*Start Spray*	*0*
101A	*031*	*131*	*112*	*051*	*10*	*(TE only) MMS-GATE-103 Being Told to Open*		*Open*	*0*
101B	001	101	101A	053	00	*(Not @ PB)* RHS Blast Gate Closed		Closed	1
101B	001	101	101A	053	01	*(Not @ PB)* RSM in Shear Cycle to PMD		Don't Open Gates	0
101B	001	101	101A	053	02	*(Not @ PB)* BSR Ready for PMD to Send Burster		Ready	0
101B	001	101	101A	053	03	*(Not @ PB)* BSR Received Burster		Got It	0
101B	*001*	*101*	*101A*	*053*	*04*	*(UM only) BSR Malf Forces PA2 to Manual*		*Malf*	*0*
101B	001	101	101A	053	05	*(Not @ PB)* BSR Initialized		Initialize	0
101B	001	101	101A	053	06	*(Not @ PB)* BSR Parked		Parked	0
101B	001	101	101A	053	10	*(Not @ PB)* Honk Horn Request		Honk	0
101B	001	101	101A	053	11	*(Not @ PB)* ECR A Explosion	Explosion	Normal	0
101B	*001*	*101*	*101A*	*053*	*12*	*(TE only) Pieces on MMS-GATE-101 Rkt Fz or TL or Projo Brstr*		*Pieces on Gate*	*0*
101B	*001*	*101*	*101A*	*053*	*12*	*(UM only) 03-XS-160 ECR A E-Stop RHS-RSM-101*		*E-Stop*	*0*
104A	001	101	101A	063	00	Line A ECR Explosion	Explosion	Normal	1
104A	*001*	*101*	*101A*	*063*	*01*	*(AN/PB only) Line A Discharge Chute Fire*	*OK*	*Fire*	*0*

Table G.1 (Cont'd)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
104B	001	101	101A	065	00	*(Not @ PB)* Explosion ECR A	Explosion	Normal	1
105	001	101	101A	067	00	Line A ECR Explosion	Explosion	Normal	1
105	*001*	*101*	*101A*	*067*	*01*	*(AN only) ECR A Area Rocket E-Stop*		*E-Stop*	*0*
105	*001*	*101*	*101A*	*067*	*02*	*(AN only) ECR A Area Console E-Stop*		*E-Stop*	*0*
106	001	101	101A	069	00	Category "A" Sump Running	Stopped	Running	0
106	001	101	101A	069	01	Category "B" Sump Running	Stopped	Running	0
106	001	101	101A	069	02	Category "C" Sump Running	Stopped	Running	0
106	001	101	101A	069	03	RCRA Sump 12-hour alarm		Alarm	0
106	001	101	101A	069	04	RCRA Sump 18-hour alarm		Alarm	0
110	001	101	101A	077	15	Received Campaign Data		Received	0
110	001	101	101A	077	16	Request Campaign Data		Request	0
110	002	102	101A	078	00	Screen D1A Diagnostic Adv. Alarm		Alarm	*1*
110	002	102	101A	078	01	Screen D1A Diagnostic Adv. Unack.		Unack	*1*
112	001	101	101A	081	00	Rocket Fuze or Tail Pieces on DFS Feed Gate	No	Yes	1
112	001	101	101A	081	01	Rocket Burster Pieces on DFS Gate	No	Yes	0
112	001	101	101A	081	02	Rocket Motor Pieces on DFS Gate	No	Yes	0
112	001	101	101A	081	03	*(TE Only)* RHS-RSM-101 Discharge Chute Fire	No	Yes	0
112	001	101	101A	081	04	*(Not @ UM)* RSM Station Feed to DFS Watch Dog Timed Out	OK	Malf.	0
112	001	101	101A	081	05	Manual Burster Drop Required	No	Yes	0
112	001	101	101A	081	06	Solid Waste Dropped into DFS	No	Yes	0
112	*001*	*101*	*101A*	*081*	*07*	*(PB only) Rocket Burster Pieces on DFS Gate*	*No*	*Yes*	*0*

Table G.1 (Cont'd)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
112	001	101	101A	081	10	Fuze Positioned at RSM	No	Yes	0
112	*001*	*101*	*101A*	*081*	*11*	*(TE only) Munition Selection Projos*		*Projos*	*0*
112	*001*	*101*	*101A*	*081*	*11*	*(UM only) Cycle Last Rkt Piece No Rkt at RDS*		*Cycle*	*0*
112	*001*	*101*	*101A*	*081*	*12*	*(TE only) Brstr Rcv'd in BSR Tray from PMD*		*Rcv'd*	*0*
112	*001*	*101*	*101A*	*081*	*13*	*(TE only) MMS-GATE-103 Closed*		*Closed*	*0*

Table G.2 RHS Line B DICIs/DICOs (ICS-CONR-104A)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
101A	013	113	104A	051	00	Line B ECR Explosion	Explosion	Normal	0
101A	*013*	*113*	*104A*	*051*	*01*	*(Not @ TE) Line B Discharge Chute Fire*	*OK*	*Fire*	*0 1@UM*
101A	*013*	*113*	*104A*	*051*	*01*	*(TE only) Priority GelRkt Shear I-Lock over Brstrs*	*I-Lock*		*0*
101B	013	113	104A	053	00	*(Not @ PB)* ECR B Explosion	Explosion	Normal	0
101B	*013*	*113*	*104A*	*053*	*01*	*(TE only) AL 211 UPA/ECV Airlk BLA LOQ & Not Normal*		*Alarm*	*0*
101B	*013*	*113*	*104A*	*053*	*02*	*(TE only) AL 211 UPA/ECV Airlk Bypass Line A*		*Conc Update*	*1*
101B	*014*	*114*	*104A*	*054*	*00*	*(TE only) Rocket System Auto Running*		*Auto*	*0*
104A	001	101	101A	063	00	Line A ECR Explosion	Explosion		1
104A	*001*	*101*	*101A*	*063*	*01*	*(AN/PB only) Line B Disch Chute Fire*	*OK*	*Fire*	*0*
104A	*003*	*103*	*101B*	*063*	*00*	*(TE only) PHS A Projo System Auto Running*		*Auto*	*1*
104A	005	105	102	063	00	ECR B Fire Alarm		Alarm	0
104A	015	115	104B	063	00	*(Not @ PB)* PB2 Screen Status		Auto	0
104A	015	115	104B	063	01	*(Not @ PB)* PMD Auto Run		Auto	0
104A	015	115	104B	063	02	*(Not @ PB)* PMD Blast Gates Closed	Don't Chop		0
104A	015	115	104B	063	03	*(Not @ PB)* PMD in Feed/ Discharge Cycle		Don't Chop	0
104A	015	115	104B	063	04	*(Not @ PB)* Initialize BSR		Initialize	1
104A	015	115	104B	063	05	*(Not @ PB)* Park BSR		Park	1
104A	015	115	104B	063	10	*(Not @ PB)* OK to Run After Horn Honk		OK to run	0
104A	015	115	104B	063	11	*(Not @ PB)* ECR B Explosion		Explosion	1
104A	*015*	*115*	*104B*	*063*	*12*	*(UM only) 03-XS-210 PMD System ECR B E-Stop*		*E-Stop*	*0*
104A	017	117	105	063	00	Plant Air Available		Available	0

Table G.2 (Cont'd)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
104A	017	117	105	063	01	Instrument Air Available		Available	0
104A	017	117	105	063	02	ECR B Man Doors Closed and Locked		Closed and Locked	1
104A	017	117	105	063	03	Hydraulic System for RSM/BSR & MIN Normal		Normal	0
104A	017	117	105	063	04	Hydraulic System for MMS-GATE-102 Normal		Normal	0
104A	*017*	*117*	*105*	*063*	*10*	*(Not @ TE) ECR A Man Door 104 Closed and Locked*		*Closed and Locked*	*0*
104A	*017*	*117*	*105*	*063*	*11*	*(Not @ TE) ECR A Man Door 103 Closed and Locked*		*Closed and Locked*	*0*
104A	019	119	106	063	00	Sump Pump Enable	Enabled	Inhibited	1
104A	019	119	106	063	01	OK to Pump Agent		OK	1
104A	019	119	106	063	02	OK to Start Processing		OK	0
104A	019	119	106	063	03	OK to Punch		OK	0
104A	025	125	109	063	01	Elec. System Power Loss		Power Lost	0
104A	025	125	109	063	02	Start Essential Power Equip.		Start	0
104A	027	127	110	063	00	HVAC Normal		Normal	0
104A	027	127	110	063	01	ECR Air Pressure Normal	Normal	Alarm	0
104A	027	127	110	063	05	Demil Counter Reset		Reset	0
104A	031	131	112	063	00	DFS Furnace Normal		Normal	0
104A	*031*	*131*	*112*	*063*	*01*	*(Not @ TE) DFS-GATE-102 Closed*		*Closed*	*0*
104A	*031*	*131*	*112*	*063*	*02*	*(Not @ TE) MMS-GATE-104, DFS-GATE-102 Open-Close Cycle*		*Cycled*	*0*
104A	031	131	112	063	02	*(TE only)* DFS MMS-GATE-104 Open		Open	0
104A	031	131	112	063	03	DFS rkts/hr prealarm		Alarm	0
104A	031	131	112	063	04	DFS Agent lb/hr prealarm		Alarm	0

Table G.2 (Cont'd)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
104A	*031*	*131*	*112*	*063*	*05*	*(TE only) Agent Accepted by DFS*		*Yes*	*0*
104A	*031*	*131*	*112*	*063*	*05*	*(UM only) Line A Disch Chute Fire*	*OK*	*Fire*	*1*
104A	*031*	*131*	*112*	*063*	*06*	*(TE only) Gelled Rkts DFS Empty of Agent lbs*		*Empty*	*0*
104A	*031*	*131*	*112*	*063*	*07*	*(AN only) DFS Stop Feed Place in Manual for 90 Seconds*		*Manual*	*0*
104A	*031*	*131*	*112*	*063*	*07*	*(TE only) Agent Heel Rcv'd at DFS*		*Rcv'd*	*0*
104A	*031*	*131*	*112*	*063*	*10*	*(AN only) MMS-GATE-104 Gate Wash Down Request*		*Start Spray*	*0*
104A	*031*	*131*	*112*	*063*	*10*	*(TE only) DFS Co-Processing Rkts and Projos*		*Co-Process*	*0*
104A	*031*	*131*	*112*	*063*	*11*	*(TE only) DFS Co-Processing Rkts and Projos Stop*		*Stop*	*0*
104A	*031*	*131*	*112*	*063*	*12*	*(TE only) DFS Projos/hr = 0*		*Zero*	*0*
104A	*031*	*131*	*112*	*063*	*13*	*(TE only) DFS-GATE-102 has Cycled and is Closed*		*Cycled & Closed*	*0*
104A	*031*	*131*	*112*	*063*	*14*	*(TE only) Sum of DFS agent, RSM heel, & 10 lbs at RDS is > RCRA*		*> RCRA*	*0*
104B	013	113	104A	065	00	*(Not @ PB)* RHS Blast Gate Closed		Closed	0
104B	013	113	104A	065	01	*(Not @ PB)* RSM in Shear Cycle to PMD		Don't Open Gates	0
104B	013	113	104A	065	02	*(Not @ PB)* BSR Ready for PMD to Send Burster		Ready	1
104B	013	113	104A	065	03	*(Not @ PB)* BSR Received Burster		Got It	0
104B	013	113	104A	065	04	*(Not @ PB)* BSR Malf Forces PB2 to Manual		PB2 to Manual	0
104B	013	113	104A	065	05	*(Not @ PB)* BSR Initialized		Initialize	1
104B	013	113	104A	065	06	*(Not @ PB)* BSR Parked		Parked	0
104B	013	113	104A	065	10	*(Not @ PB)* Honk Horn Request		Honk	1

Table G.2 (Cont'd)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
104B	013	113	104A	065	11	*(Not @ PB)* ECR B Explosion	Explosion	Normal	0
104B	*013*	*113*	*104A*	*065*	*12*	*(AN only) Line B Disch Chute Fire*	*OK*	*Fire*	*0*
104B	*013*	*113*	*104A*	*065*	*12*	*(TE only) AL 214 UPA/ECV Airlk BLB LOQ & Not Normal*		*Alarm*	*0*
104B	*013*	*113*	*104A*	*065*	*12*	*(UM only) System E-Stop RHS-RSM-102*		*E-Stop*	*0*
104B	*013*	*113*	*104A*	*065*	*13*	*(TE only) AL 214 UPA/ECV Airlk Bypass Line B*		*Conc Update*	*0*
104B	*013*	*113*	*104A*	*065*	*13*	*(UM only) Line B Disch Chute Fire*	*OK*	*Fire*	*0*
105	013	113	104A	067	00	Line B ECR Explosion	Explosion	Normal	0
105	*013*	*113*	*104A*	*067*	*01*	*(AN only) System E-Stop RHS-RSM-102*		*E-Stop*	*1*
105	*013*	*113*	*104A*	*067*	*02*	*(AN only) ECR B Area Console E-Stop*		*E-Stop*	*0*
106	013	113	104A	069	00	*(Not @ PB)* Category "A" Sump Running (SP1)	Stopped	Running	0
106	013	113	104A	069	01	*(Not @ PB)* Category "B" Sump Running (SP1)	Stopped	Running	0
106	013	113	104A	069	02	*(Not @ PB)* Category "C" Sump Running (SP1)	Stopped	Running	0
106	013	113	104A	069	03	Category "A" Sump Running (SP2)	Stopped	Running	0
106	013	113	104A	069	04	Category "B" Sump Running (SP2)	Stopped	Running	0
106	013	113	104A	069	05	Category "C" Sump Running (SP2)	Stopped	Running	0
106	013	113	104A	069	06	*(Not @ PB)* RCRA Sump 12-hour alarm		Alarm	0
106	013	113	104A	069	07	*(Not @ PB)* RCRA Sump 18-hour alarm		Alarm	0
110	013	113	104A	077	15	Received Campaign Data		Received	1
110	013	113	104A	077	16	Request Campaign Data		Request	0

Table G.2 (Cont'd)

To Controller			From Controller				Interpretation		
CONR	Input Word (B4:)	Safe Mask (B4:)	CONR	Output Word	Bit	Description	0	1	Safe
110	014	114	104A	078	00	Screen D4A Diagnostic Adv. Alarm		Alarm	1
110	014	114	104A	078	01	Screen D4A Diagnostic Adv. Unack.		Unack	1
112	013	113	104A	081	00	Rocket Fuze or Tail Pieces on DFS Feed Gate	No	Yes	0
112	013	113	104A	081	01	Rocket Burster Pieces on DFS Gate	No	Yes	1
112	013	113	104A	081	02	Rocket Motor Pieces on DFS Gate	No	Yes	0
112	013	113	104A	081	03	RHS-RSM-101 Discharge Chute Fire	No	Yes	0
112	013	113	104A	081	04	*(Not @ UM)* RSM Station Feed to DFS Watch Dog Timed Out	OK	Malf.	0
112	013	113	104A	081	05	Manual Burster Drop Required	No	Yes	0
112	013	113	104A	081	06	Solid Waste Dropped into DFS	No	Yes	1
112	*013*	*113*	*104A*	*081*	*07*	*(PB only) Rocket Burster Pieces on DFS Gate*	*No*	*Yes*	*0*
112	013	113	104A	081	10	Fuze Positioned at RSM	No	Yes	0
112	*013*	*113*	*104A*	*081*	*11*	*(AN/UM only) Cycle Last Rkt Piece No Rkt at RDS*		*Cycle*	*0*
112	*013*	*113*	*104A*	*081*	*11*	*(TE only) Rocket Processing with Gelled Agent*		*Gelled Rocket*	*0*
112	*013*	*113*	*104A*	*081*	*12*	*(TE only) Gelled Rocket 2nd Cut*		*2nd Cut*	*1*
112	*013*	*113*	*104A*	*081*	*13*	*(TE only) RSM Cut Position 8*		*Position Eight*	*0*
112	*013*	*113*	*104A*	*081*	*14*	*(TE only) Rocket Tail Piece on DFS Feed Gate*		*Feed*	*0*
112	*013*	*113*	*104A*	*081*	*15*	*(TE only) DFS Lower Gate Cycled Rcv'd*		*Rcv'd*	*1*
117	013	113	104A	089	00	*(TE only) MUN-317, AL-211, AL-214* ACAMS Not Online Timer		Alarm	0

APPENDIX H

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